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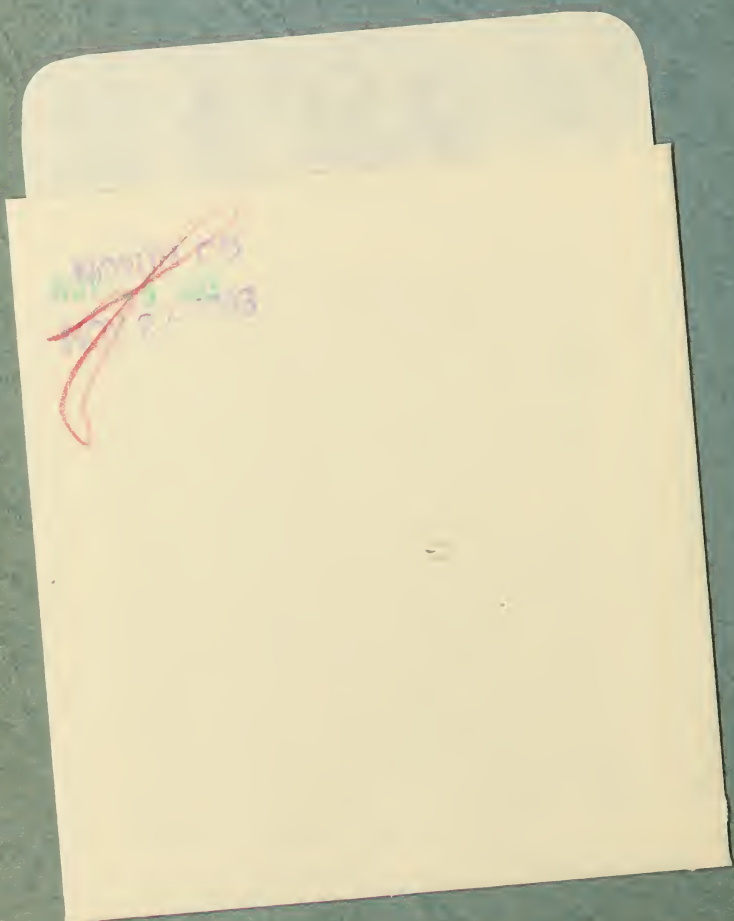
STATE OF COLORADO
BUREAU OF MINES
State Capitol, Denver

JOHN T. JOYCE, *Commissioner of Mines*

ANNUAL REPORT
for the Year 1933



BRADFORD-ROBINSON PRINTING CO.
DENVER, COLORADO
1934



STATE OF COLORADO
BUREAU OF MINES
State Capitol, Denver

JOHN T. JOYCE, *Commissioner of Mines*

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ANNUAL REPORT
for the Year 1933



Wm. F. Felt

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Reports

Wm. F. Felt

BRADFORD-ROBINSON PRINTING CO.
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LETTER OF TRANSMITTAL

To His Excellency,

THE HONORABLE ED C. JOHNSON,

Governor of Colorado.

Sir: In compliance with Section 3392 of the Compiled Laws of Colorado, 1921, I have the honor to transmit herewith the Annual Report of the State Bureau of Mines for the year 1933.

Respectfully submitted,

JOHN T. JOYCE,

Commissioner of Mines.

State Capitol,
Denver, Colorado,
June 1, 1934.

FINANCIAL STATEMENT

1931-1933

Appropriation for the fiscal years 1931-1933:

Salary, Commissioner.....	\$ 6,000.00	
Salaries, 4 Inspectors.....	20,000.00	
Salary, Clerk and Assistant Curator.....	3,600.00	
Salary, Stenographer and Assistant Clerk	3,000.00	
Salary, Watchman.....	2,400.00	
Extra Help.....	1,000.00	
		<hr/>
		\$36,000.00

Traveling Expenses, Commissioner and Inspectors	17,600.00	
Incidental Fund.....	1,400.00	
Printing State Mining Laws, Departmental Bulletin No. 11.....	500.00	
		<hr/>
		\$55,500.00

DISBURSEMENTS

Salaries—

Commissioner	\$ 5,694.50	
Inspector, District No. 1.....	4,745.15	
Inspector, District No. 2.....	4,745.15	
Inspector, District No. 3.....	4,745.15	
Inspector, District No. 4.....	4,797.23	
Clerk and Assistant Curator.....	3,433.87	
Stenographer and Assistant Clerk.....	2,847.01	
Watchman	2,309.50	
Extra Help.....	1,000.00	
Retirement Fund.....	1,151.80	
Unemployment Fund.....	217.75	
Salary Cut, as per Executive Order, February 1, 1932.....	287.50	
Unexpended Balance.....	25.39	
		<hr/>
		\$36,000.00

Printing Mining Laws..... 500.00

Traveling Expenses, Commissioner and Inspectors	\$14,069.87	
Reduction by Executive Order.....	3,528.73	
Unexpended Balance.....	1.40	
		<hr/>
		\$17,600.00

Incidental Expenses	\$ 1,328.70	
Unexpended Balance	71.30	
		<hr/>
		\$ 1,400.00

\$55,500.00

Total Appropriation..... \$55,500.00

Total Disbursements.....\$51,585.68

Deduction per Executive Order, February 1, 1932..... 3,816.23

Unexpended Balance.....	98.09	
		<hr/>
		\$55,500.00

PERSONNEL OF THE BUREAU OF MINES OF THE STATE OF COLORADO

JOHN T. JOYCE, Commissioner of Mines.....	Denver
GEORGE BECKER, Inspector, District No. 1.....	Denver
HERRICK McLEOD, Inspector, District No. 2.....	Colorado Springs
R. J. MURRAY, Inspector, District No. 3.....	Salida
J. F. CLOUGHER, Inspector, District No. 4.....	Silverton
W. H. WILLIAMS, Chief Clerk.....	Denver
MRS. A. M. NICKERSON, Stenographer and Assistant Clerk	Denver

DISTRICTS OF INSPECTION

DISTRICT No. 1—^aAdams, Arapahoe, Boulder, Clear Creek, Denver, Gilpin, Grand, Jackson, Jefferson, Larimer, Logan, Moffat, Morgan, Phillips, Routt, Sedgwick, Washington, Weld and Yuma counties.

DISTRICT No. 2—^bBaca, Bent, Cheyenne, Crowley, Custer, Douglas, Elbert, El Paso, Fremont, Huerfano, Kiowa, Kit Carson, Las Animas, Lincoln, Otero, Prowers, Pueblo and Teller counties.

DISTRICT No. 3—^cChaffee, Delta, Eagle, Garfield, Lake, Mesa, Park, Pitkin, Rio Blanco and Summit counties.

DISTRICT No. 4—^dAlamosa, Archuleta, Conejos, Costilla, Dolores, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan and San Miguel counties.

On August 2nd, 1928, all former Departmental orders of temporary transfers from one district to another were vacated and in lieu thereof the following temporary changes in the different districts were made by order of the Commissioner of Mines, to-wit:

^aAll of the county of Summit and that part of Park County lying north and west of a line drawn from the southwest corner of Jefferson County to the southwest corner of Park County were temporarily transferred from District No. 3 to District No. 1.

^bThat part of said Park County lying south and east of said line was temporarily transferred from District No. 3 to District No. 2.

^cThat part of Gunnison County in the extreme northwest corner and lying north of the 39th degree of latitude, that part of Saguache County lying south and east of the Continental Divide and all of the counties of Mineral, Rio Grande, Conejos, Alamosa and Costilla were temporarily transferred from District No. 4 to District No. 3.

^dAll of the counties of Mesa and Delta were temporarily transferred from District No. 3 to District No. 4.

The remainder of all said districts to be left intact as now established by law until further changes are made by order of the Commissioner of Mines, or by the legislature of the State of Colorado.

INTRODUCTION

The activities of the Bureau of Mines during 1933 were confined to the usual routine, no funds for any special work being provided.

The four inspectors visited practically all of the operating metal mines, quarries, mills, smelters and railroad tunnels at least once during the year. Most of the larger operations were inspected more than once. The object of these inspections is to eliminate, as far as possible, unsafe conditions and practices in the operation of such properties. In general, this work meets with the lively cooperation of the operators.

The Commissioner and Inspectors are anxious to help the mining industry in every legitimate manner and wish to be called upon whenever their services can be used.

Inquiries regarding the mines and mineral resources of the state and questions regarding the demand and market for less common mineral products are constantly coming into the Bureau. An earnest endeavor is made to furnish the information desired. Helpful cooperation is often received from the Colorado Geological Survey, the United States Bureau of Mines and the United States Geological Survey.

The Commissioner takes this opportunity of expressing his appreciation of the loyal and efficient services that have been rendered by the entire personnel of the Bureau during the past year.

METAL MINING IN COLORADO, 1933

By John T. Joyce

(State Commissioner of Mines)

Since the close of the World War, the mining industry has passed through many changes, none of which can be regarded as especially encouraging when compared with the prosperity that prevailed throughout the states of the Western mining fields prior to that great catastrophe, with the possible exception of the few years of paper prosperity from 1925 to the middle of 1929, a period marked in many cases by heedless investments in gilded paper rather than upon thoughtful consideration of the soundness of the securities offered, mostly upon the advice of the captains of finance whose judgment was considered so authoritatively sound by gullible investors that it was accepted by the greater majority as infallible. Thus a great part of the wealth of the country was diverted from the development of its natural resources, as rich as they are varied, into the coffers of predatory wealth which, under a general adopted policy of conservation of capital, served very few useful purposes for relief during the dark hours of depression. Particularly was this advice directed towards discouraging mining investments and its full import was not fully realized until the bottom dropped out of the market in 1929. It was not until then that the average investor awoke to the fact that mining was more of a legitimate business and less of a gamble than the stock markets on Wall Street and other marts of the world. This is evident by the strong swing toward the mining industry for legitimate investment during the past two years which is far greater than at any period of the five preceding years of inflated prosperity, and particularly during the year 1933, when the spirit of pessimism and discouragement was brushed aside by well founded feelings of optimism and revived hopes, due principally to effective steps taken by the Federal Government to correct the rapidly failing monetary situation by the increase of the price of gold from its former standard value of \$20.67 to \$35 per fine ounce and the increase of the price of domestically newly mined silver to 64½ cents per fine ounce and to what appears to be well founded hopes for further increase in the price of silver by additional silver legislation.

Outside capital is beginning to flow into the state, and some good sized mining deals have already been consummated; others of enormous proportions are well under way. Many old mines, idle for years, have resumed operations either by owners or lessees, with highly gratifying results, and a larger number are preparing for future operations. This is most encouraging, but that which is needed most at this time from all business, industrial and financial interests throughout the state, deeply interested in mining, whether they realize it or not, is intelligent and

loyal support in a wholesome manner, instead of the disheartening way that generally marked their attitude toward mining in Colorado during the past decade. Observations of like character can also be applied to a few engaged in the mining industry whose standing and reputation in mining circles naturally lend weight to their opinion in regard to mining properties. Too often have they wrote and spoken discouragingly of our mineral resources, and quite frequently the construction given to their written or oral remarks, whether justified or not, has had a tendency to retard progress in the development and operation of our mines.

Recent developments and heavy increases in the number of gold and silver producing mines in Colorado is rapidly dispelling their attitude and it is most cheering to note that at least a few of these former skeptics are now ardent supporters.

Colorado in common with all other mineral producing states is seeking legitimate investments for the development and operation of its wonderful mineral resources and in order to obtain such investments in justified amounts it is preeminently fitting and righteous that prospective investors in the mining industry should be truthfully advised of the extent and richness of its fields. Therefore all of the figures and data used in this report are gathered from confirmed statistical sources with the exception of few necessary estimates and approximations. To do otherwise would result in more harm than good, and I trust that all the industrial, financial and commercial organizations, as well as those engaged in mining, because they are all vitally interested, will give these matters deep thought and careful consideration that they may be encouraged and induced to uphold and further the efforts now well under way for the restoration of Colorado to its former commanding position as a leading mineral producing state.

Production

The production of gold, silver, copper, lead and zinc by counties for the state of Colorado for the year 1933 will be found in Table I inserted in this report.

Mineral Resources

According to geological surveys, both Federal and State, there are between 25,000 and 30,000 square miles of highly mineralized territory in the state of Colorado, the most extensive and proportionately least developed of any other state in the Union, extending from Wyoming to New Mexico, and from Denver to the Utah line. Of this vast area not over one-fifth has been closely geologized and mapped, and of this geologized area at least three-fifths are covered by rock slides, forests, soil and vegetation, the remaining two-fifths, or a little over 2,000 square miles are exposed, and from this exposed area Colorado has produced in mineral wealth \$1,674,779,337 in gold, silver, copper, lead and zinc, more than half a billion in excess of the present

assessed valuation of the state. This does not include the value of the production of iron, molybdenum, tungsten, manganese, radium and other minerals all of which appear in the table of total mineral production of the state since 1859 on another page of this report.

In a press article, published a few months ago in reference to an address made by Dr. T. S. Lovering, metalliferous geologist, a member of the United States Geological Survey now being made of Colorado, he is quoted as saying, "there are at least three practically heretofore unknown locations that may be big mining producing areas in the future.

"Other formations similar to these are indicative of like mineral wealth. Without the new discoveries made by the Survey, such formations could not have been located, for there is little at the surface to indicate to the ordinary prospector that rich ore may exist beneath."

One of these locations is in Boulder County and two in the San Juan triangle.

By all means this survey should be continued, without fail, and a sufficient appropriation should be provided therefor by the next legislature. The importance of this cannot be too strongly emphasized.

Referring to production Table No. I it will be seen that there was an increase in all the base metals and silver over the preceding year 1932 and a decrease in the production of gold. The greater gold increases reported came from the counties of Lake, Eagle, Gunnison, Summit, Boulder, La Plata, Jefferson, Dolores, Moffat and Montezuma in the order named. The decreases were very slight in Teller and Clear Creek counties in proportion to their production during the previous year, and declines from the counties of Park, Gilpin, San Juan, Ouray and San Miguel. The decreases in the production of gold in Gilpin county is attributable principally to temporary curtailment of operations by the Chain-o-Mines and in Park county to the suspension of shipments of medium grade ores from the London and American mines pending the construction of concentration mills for each of said properties. The increases and declines in the smaller gold-producing counties were about a standoff. It is reported that the Chain-o-Mines is preparing to resume operation on a large scale and with the London and American mills running to full capacity, many new custom mills operating and others in course of construction, the resumption of operation by a large number of gold mines, idle for years, and many more preparing to resume, I confidently look forward to a heavy increase in the production of gold, silver and the nonferrous base metals in 1934.

The impetus given to gold mining by the increased price of gold has resulted in remarkable increase of activity in all the gold-producing districts of the state. Cripple Creek is exceptionally active and its rapidly growing tonnage threatens, in 1934, to

rival that of former years. Boulder, likewise an essentially gold-producing county, shows a proportionately large increase in activity.

Developments in that county during the past year have opened up many good sized veins of both high and low grade ores in old and new properties from which a monthly tonnage of between 6,000 and 7,000 tons of both crude and mill ore are now being extracted. This fact conclusively sweeps away the unwarranted reputation from which it has heretofore suffered as being the home of ore pockets and small veins.

Gunnison and La Plata counties are also worthy of special mention because of their remarkable increase in mineral production in 1933.

Montezuma appears on the report this year as a newcomer in gold production, due to the sensational discovery of an exceedingly rich gold vein in the Red Arrow group of claims on the East Mancos River in the La Plata Mountains, which caused a rush of prospectors into that district.

Gold and Silver

Colorado ranks second among the gold-producing states of the Union, being led only by California. Since the year 1880, according to the U. S. Bureau of Mines and the American Bureau of Metal Statistics, the five leading states, including Alaska, in the production of gold are as follows: California first, \$849,796,358; Colorado second, \$773,862,618; Alaska third, \$419,791,079; South Dakota fourth, \$310,678,815; Nevada fifth, \$258,417,180; and Utah sixth, \$141,750,957. From 1880 to 1910 Colorado was the leading silver-producing state of the nation with a total production of \$566,996,140. But since 1896 gold has been its leading mineral product.

Base Metals

Since the beginning of the present century the annual total production of lead and zinc reached their lowest ebb in 1932. There was no material change in copper. The gravity of these enormous declines is shown by comparisons with the years 1913 immediately preceding the war, and 1928 preceding the depression. In 1913 the total production of lead was 87,897,753 pounds, in 1928, 53,210,723 pounds. In 1932 lead had dwindled to 4,299,000 pounds. In the same years the production of zinc was 119,346,429 pounds, and 71,462,000 pounds respectively, while the zinc production for 1932 was practically nil with only 218,000 pounds.

It is obvious that this unnatural fall in the production of the metals mentioned, was the forced suspension of operations in most of our sulphide mines because of the low price of metals, which also caused a heavy curtailment of production from the few that remained in operation.

Since 60 to 70% of the gold and silver produced annually by

the mines of the state of Colorado outside of Teller county come from complex sulphide ores in which they are associated with the above mentioned metals and iron, it can readily be seen that the enormous falling off in the production of the base metals is responsible for a corresponding decrease in the production of gold from such mines.

Very likely the increase in the price of gold and silver will result in the rapid resumption of many suspended sulphide mines, especially those in which gold and silver values predominate.

MISCELLANEOUS METALS

Molybdenum

The largest known molybdenum mine in the world is located at Climax, Colorado, now being operated by the Climax Molybdenum Company. Upwards of 80,000,000 tons of molybdenum ore has been developed in this mine. During 1933 the reported production was 5,028,695 lbs. of 100% molybdenum. While the value was not reported, under prevailing market prices it should be well in excess of \$4,000,000. In addition to the field above mentioned molybdenum in appreciable quantities is known to exist in many other districts of Colorado's mining fields.

Tungsten

While tungsten is known to exist in goodly quantities in several mining counties of Colorado, the largest and most productive field is at Nederland in Boulder County. The recent increase in the price of tungsten has augmented activity in Boulder County, which is likely to extend to other counties during 1934.

Manganese

Manganese is found in large quantities in almost every important mining county in the state, but of late years because of the cheapness of imported manganese there has been very little activity in its production. Here is an industry, dormant, whose revival by proper tariff protection would give employment to many thousands of men.

Radium, Uranium and Vanadium

Ores containing these metals are found in many counties of the state. The most extensive field being near Naturita in the western part of Montrose County. The ore in this field is known to contain a comparatively high percentage of radium. From 1913 to 1922 they were quite actively operated for their radium content, but being unable to compete with the low price of foreign produced radium the mines have been idle for the past twelve years. Another case inviting Congressional attention. According to recent reports, operations will be resumed on an extensive scale during 1934. Garfield County was a heavy producer of

vanadium up to July, 1932, when the U. S. Vanadium Company ceased operations. They will likely resume shortly.

Nonmetallics

Operations of nonmetallic mines and quarries during the past few years in Colorado have developed a most important industry. Any demand for building or monumental stone of every kind, such as granite, marble, onyx and so on, can be fully supplied from their stupendous stores in various parts of the state. Many quarries have been opened along the eastern mountains, the Arkansas and Platte rivers, in Gunnison, Pitkin and in other counties of the western slope. Building sands and gravels are found in abundance along all rivers and streams.

The clay deposits of Colorado for all purposes are unexcelled. It is highly probable that any desired kind of clay may be found within the state's confines. Beryl, feldspar, fluorspar, bentonite, sillimanite, lime, gypsum and the like are found in large quantities. Enormous oil shale deposits, also bitumen, asphalt and tar sands exist in several of the western counties. Mica, jefferisite, muscovite and other insulating materials are widely distributed throughout the state. During the past year what appears to be a good sized deposit of asbestos was discovered in Jefferson County, lying immediately beneath a heavy deposit of muscovite. While its importance is known, developments have not been sufficient to prove its thickness or extent.

Placers

Placer ground is known to exist in areas of more or less extent in every gold-producing district of the state. In many they embrace multifold thousands of acres of placer ground and offer a fruitful field for exploitation. In the earlier days when the fields were new the "Old Timer" with his pick, shovel, pan, sluice and rocker often made fortunes from small patches of ground which were rich in gold content measured by the cubic yard. But that field very extensive in those days is now more or less limited, and that which remains requires careful and energetic prospecting and testing on the ground itself instead of through unverified prospectuses or other means of promulgation. The advanced price of gold materially enhances the chances of success of present day placer mining.

Tonnage and Employment

In 1900 the number of men employed in and about the metal mines of Colorado was upwards of 30,000. At that time five smelters were in operation running to full capacity. Every mining camp was active and unbounded prosperity prevailed throughout our state. While it is impossible to obtain from the records of this office the amount of tonnage these smelters handled that year the total value of the ores treated being upwards of \$50,000,000 is conclusive evidence that it was enormous.

As a matter of fact it is well known that these five smelters running at full capacity were unable to treat the ores that the mines at that time were capable of producing and many heavy producers were compelled to seriously curtail production.

In 1913 the number of mines upon which inspector's reports were filed was 993. It is quite possible that a number of small mines that failed to notify this department of operation escaped inspection and were not reported, so it is reasonable to assume that there were in excess of 1,100 mines in operation during that year; the total tonnage produced therefrom treated by the smelters was 883,289 tons, an average of 2,420 tons per day, exclusive of the ores of Cripple Creek, which were treated by cyanide mills, gold from placers and also zinc concentrates which were shipped to outside zinc plants. The number of men employed in and about metal mines during that year was very nearly 24,000. This does not include the number engaged in other lines of business in the various mining sections, or those engaged in outside contributory industries. Of the total amount of freight handled by the railroads in Colorado during the years of such activity over 80% was due to mining.

In 1933 the number of working lode mines upon which reports were filed was 351, of this amount the number of mines producing from \$2,500 to several millions in the precious and nonferrous metals was 154. According to production reports received by the Federal Bureau of Mines for the State of Colorado—the number of lode mines producing lesser amounts varying from \$100 to \$2,000 from meager and intermittent operations was 460. The number of placer mines producing from a few ounces to several thousand, as reported to the Federal Bureau was 286, all of which show a decided increase in activities over the preceding year. Because of the number of smaller operators in both lode and placer mines, above mentioned, it is impossible to give the exact number of men employed, but an estimate of 6,000 in round numbers would be most conservative, which is at least 1,500 to 2,000 in excess of the number of men employed during the preceding year.

Neglected Districts and Mines

In almost every county will be found districts neglected for the past 30 or 40 years, several of them with good records of producing high grade ores. Because of poor roads, inaccessibility, antiquated methods of transportation and the high cost of freight and smelter treatment, their medium and low grade ores could not be mined and treated at a profit. This caused suspension of all the mines in many such districts which now, with up-to-date improved metallurgical processes, and modern means of transportation could be profitably operated.

Many mines in the older districts may be similarly classified as neglected properties which were operated profitably dur-

ing the periods mentioned, yielding fortunes both great and small from shallow operations which if now properly equipped for deeper and more thorough development would undoubtedly be added to Colorado's list of producing mines annually.

Drainage and Reduction Plants

It is common knowledge that below the levels to which the Leadville mines are drained by the Yak Tunnel, and Cripple Creek by the Roosevelt Tunnel, there exists enormous deposits of pay ore that have been determined and established by costly development in various mines in both said districts below the level of those tunnels which cannot be profitably operated because of a heavy underwater flow. The driving of the proposed tunnels would permit a profitable extraction of these vast ore bodies which would add multifold millions to the wealth of Colorado. But when these worthy projects, together with the building of two metallurgical plants in Colorado, were presented for consideration to the PWA board in Washington, though the vast importance of each was frankly admitted, they were flatly denied consideration on the grounds that the Act itself made no provision for aiding the metal mining industry in any particular.

Nothing of greater moment in general for the future of mining in Colorado than the projects mentioned above, is possible of conception. Hence it behooves all business interests, as well as those directly engaged in mining, to lend every possible support to any and all legitimate moves that may be made to obtain sufficient means to carry such projects to a successful end. Since it is apparent that no aid for the mining industry can be obtained from the PWA every possible influence should be brought to bear upon the Senators and members of Congress from the mining states to pave the way for the uplift and furtherance of the mining industry through other channels, such as the RFC by additional legislation if the same be necessary to clothe such institutions with sufficient authority and power to grant such aid under proper safeguards. Likewise to support the proposed legislation, requested in a resolution unanimously adopted by the National Convention of the Gold Mining Association of America held in Denver May 18, 1934, for the appropriation of \$100,000,000 for the development of the mineral resources of the nation. This was one of the most important resolutions for the general good of the mining industry adopted at that convention which was by far the most important and far-reaching in its effects of any meeting of like character that has been held in the western mining states in many years. As a matter of fact this is the first direct appeal ever made by the great mining industry of the west for Federal aid, and while all other industries including farm, factory, financial, commercial, public utilities and the like, have unceasingly been crying for help, to which pleadings Congress generously responded to the tune of multifold millions. By granting such aid to this great basic industry the government

would receive proportionately more lasting and substantial benefits from increased production of gold and silver than from other industries for the reason that every dollar of new gold extracted from our mines that finds lodgment, under our new financial policy, in our national treasury lays the foundation for at least \$30 national credit.

There is no question but that the Federal Securities Act, noble in its purpose, retarded the progress of the mining industry during the past year because of the uncompromising manner of its application under regulations of the Federal Trades Commission. Its recent amendment relieves the situation considerably, especially for small companies. But there is still room for improvement by further revision of the Act in reference to mining and the exercise of common sense by the Federal Trades Commission in any and all regulations relating thereto. It is quite evident that the personnel of this commission know very little about the average difficulties encountered in the financing and operation of mines of all classes, and it seems fitting to suggest at this time that at least one member of that Commission should be fully familiar and well versed with all branches and phases of mining, who will prevent the provisions of the Act from being so applied under regulations of the Commission as to add unreasonable difficulties to the financing of new mining enterprises.

Summarizing, obviously the crying needs of the hour for restoring the mining industry in Colorado to the commanding position it occupied in former years is a well organized, coordinated and up-to-date modernized milling, smelting and final reduction system with finishing and marketing plants located at one or more convenient central points which should be determined by the feasibility of transportation facilities, the nearness of power sites and other necessary conveniences that will permit the treatment of low grade ores at the lowest possible cost, operating co-operatively with concentrating mills in outlying districts; the courageous development of newly discovered mines and of prospects which have advanced beyond the prospective stage, but upon which developments thus far advanced are too meager to place them in the class of developed mines; the recovery of old mines idle for years, the majority of which are now inaccessible for close examination, worked only to shallow depths, many not below 300 feet, and very few that reached a depth of more than 500 feet. Many good and sufficient reasons can be advanced for the failure of the further development of these properties at the time they were operated. It is well known by representative men of the districts in which such mines are located, and former operators, that they contain goodly amounts of ore, some to enormous proportions only awaiting capital to restore them to the list of permanent producers. In addition to undiscovered cropping veins in exposed territory and those in concealed areas covered by the scoring and erosions of nature hereinbefore men-

tioned, many large dikes and surface deposits of quartz monzonite, rhyolite, porphyritic, volcanic and other gold-bearing rocks are known to exist throughout the mining fields of the state which have been only meagerly prospected or tested, but as far as they have been investigated, values in gold have been found that indicate potential rivals of the famous Homestake, Treadwell and the Alaska Juneau mines.

The same is true in reference to the numerous placer fields which vary in size from the bottom of narrow gulches to extensive parks and plains embracing thousands of acres. The value of the smaller tracts can easily be tested and determined by experienced placer miners at little expense and offer fruitful fields for the sluice box, rocker, long tom and hydraulic operations, but the more extensive areas in the parks or on the plains require more expensive and powerful equipment for their successful operation, such as the mighty floating dredge, the overland dredge or other well contrived mechanical devices with accompanying power shovels or drag lines. Not over three or four of these vast gold-bearing placers have been sufficiently tested to justify the beginning of operations and in each tested case when followed with operations they were successful. Thus I am convinced that by such testing the majority thereof will be found to contain gold in sufficient quantities to justify such equipment, and this, in connection with the development of the great dikes and surface deposits mentioned would be followed by the inauguration of new branches of the mining industry that would add multifold millions to the mineral wealth of Colorado.

**Colorado Mineral Production U. S. Bureau of Mines Since 1859
to 1933, Inclusive.**

Gold	\$ 731,604,833
Silver	520,316,039
Copper	48,052,349
Lead	218,362,848
Zinc	156,443,268
Coal	764,744,000
Tungsten	19,600,000
Radium	18,000,000
Petroleum	30,692,777
Molybdenum	21,793,000
Vanadium	7,355,204
Fluorspar	2,053,000
Iron	3,936,000
Manganese	4,217,000
Grand Total.....	\$2,547,170,318

CONDENSED REVIEW OF MINING DISTRICTS BY THE FIELD INSPECTORS FOR 1933

DISTRICT No. 1 by George Becker

The mining activity in this district continues in its encouraging trend. During the past four years this district has shown a steady increase in the production of gold and a corresponding increase in employment, over each preceding year. With the stimulating effect of the increased price for gold, Colorado miners believe the state has an opportunity to regain much of her lost fame. Like Rip Van Winkle, the mining camps are awakening from their long sleep, and gazing with bewildered eyes at the mass of machinery that is again moving, and the men who are going back to work. Mines whose stopes and tunnels have stood still or caved in, whose still machinery has rusted for ten or twenty years, are again scenes of activity as debris is cleaned away and machinery reconditioned.

The mineralized area of Colorado is around 39,000 square miles; it possesses the greatest known undeveloped resources of any state in the Union. Incidentally the average depth of all the mines working is placed at considerably less than 1,000 feet, and from this average depth the mines have produced an enormous wealth of the combined metals approaching one and three-quarter billion dollars. Compare this shallow depth with the successful deep mining in other parts of the world, which will demonstrate that the great mineralized areas of Colorado have only been scratched.

A few years ago Park County was not regarded as a gold producer of importance. Last year it led all other counties in gold production. Its rapid progress in this particular goes to show what energetic capital can do in Colorado. In 1932 the Alma district produced the highest average per ton value of gold ore in the world, which was around ninety dollars per ton, this was mostly due to deeper mining and new development.

During the year 1933 a number of new enterprises began operations and others of substantial nature are planned for the future. Most of these have sufficient financial backing to carry on operations. Much attention is being paid to low grade ore, which requires large investment in machinery and equipment for their economic extraction and treatment. In the mountains of this region, there undoubtedly remain many important veins of gold and silver, large and small, yet to be discovered. In operating low grade mines exceedingly rich ore is frequently encountered.

The tungsten mines around Nederland, after being shut down for the last two years, due to the low price of tungsten and no

market, are again showing renewed activity. The activity is due to the Wolf Tongue Mining Company starting their custom mill at Nederland, and offering to buy low grade tungsten ore, this will stimulate leasing in the surrounding district and put a number of miners back to work. The price for tungsten ore in the United States is governed, to a great extent, by the importation of foreign ore produced by cheap labor which permits the same to be sold here at a price below the cost of production in this country.

This year there were twenty-two or more ore mills operating in different parts of this district. Four of this number were new mills constructed and placed in operation the latter part of this year, the twenty-two mills when operating are treating around 2,500 tons of mill ore daily. Also four new aerial wire rope trams, each exceeding 4,000 feet in length were constructed and placed in operation the latter part of this year. There were a number of small five-stamp mills operated in different parts of the district by prospectors with good results.

Judging from present new activity, and the additional number of inquiries for metal mines over the preceding year, and the new organizations under way and those that are just getting started it would seem that the coming year will show a still greater increase in production and employment.

There are 1,000 or more men employed at the different brick plants in Denver where they manufacture a product from clay, which is produced from the clay mines near Denver. The manufactured product is shipped all over the world. The nonmetallic branch of the mining industry is increasing. The State Mine Inspectors have as much work in looking after the safety conditions in clay mines and plants as they have in many of the metal mines.

DISTRICT No. 2 by Herrick McLeod

The mining industry in the Cripple Creek district has been stimulated by the revived interest in gold mining and a higher price for gold. Ore shipments have increased almost fifty per cent. It is still evident, however, that the special advantages offered by the district are not fully appreciated by some of those who are seeking mining investments. The advantages offered are, accessibility, a mild climate which permits all year work, a convenient market for all grades of ore, with reasonable freight and treatment rates, good miners, and a large acreage of unexplored ground within the confines of the producing area.

In a recent interview with Mr. John Tait Milliken I mentioned an article in which he stated that ore bodies had been found at various depths in the Cripple Creek district, under ground which showed no indication on or near the surface, of the existence of ore beneath. He drew an irregular circle on a sheet of paper. He said, "This line represents the contact between the

eruptive matter and the surrounding granite. The area within the circle is approximately 4,300 acres. The explored area within the circle totals 1,300 acres. This 1,300 acres has produced \$375,000,000.00. There is left within the circle, an area of 3,000 acres which has not been explored. The district is drained by the Roosevelt Deep Drainage Tunnel to an average depth of 1,750 feet. The camp was made, in the first place, by sinking shafts, and cross-cutting and drifting to the ore bodies. It will be made again in the same way. It takes money."

Mr. Milliken has unlimited faith in the district, and he follows the Bible precept of combining faith and works. After an extensive campaign of development, he has found good ore in the Ada Bell property. He has equipped the Homestake property for operation, and is preparing to sink the shaft.

Other mines which have been equipped for operation within the past year are the American Eagles, John A. Logan, Katinka, Deadwood, Hull City, Gold Bond, Los Angeles, May B., Wild Horse, Hoosier, Wagner, Upper Granite, Portland No. 3, Specimen, Orpha May, Ida May, Stratton's Independence, El Paso, Prince Albert, Colorado King, Little Joe and Kalamazoo, Proper, and Plutocrat. Two-thirds of these operations are producers. All the others have ore in sight, and will soon be in the producing class.

The Colorado International Mining Corporation took over the property of the Granite Gold Mining Co. in October, 1933. Since that time, over 600 feet of the lateral from the 2,000-foot level of the Ajax shaft to the Roosevelt Drainage Tunnel, has been driven. The lateral will be about 1,900 feet long. When it is completed, pumps will be installed, and the shaft will be sunk a lift of 250 feet. It is reported that the company is prepared to spend \$250,000.00 in development. Many split check leases have been granted on the upper levels, and the company is making drives on the lower levels. Production is increasing from month to month.

The purchase of the Wagner mine on Mineral Hill by North American Mines, is a matter of importance to the district. Several cars of ore have been mined from the vein exposed at a depth of 60 feet. The shaft has been sunk an additional 50 feet, and a cross-cut is being driven from the bottom to cut the vein exposed above.

The Cresson is shipping 5,000 tons of mine ore and 3,000 tons of dump, a month. Seven drifting machines are kept going on development.

The Portland property has seven shafts in operation. Four of these are operated by the company for the benefit of split check lessees, and three by independent leasing companies. An increased tonnage is expected for the coming year.

The United Gold Mines group is producing the usual tonnage.

The Jerry Johnson, Commonwealth, and Pinnacle are shipping steadily, and making a profit.

The mining and milling of Cripple Creek District ores furnishes employment for twenty-five hundred men.

Outside of Teller, there was very little activity in my district during the greater part of last year, but the increase in the price of gold caused considerable stir in such counties with several mines long idle actively preparing for operations during 1934. In addition to the metal mines there were 26 quarries operating in District No. 2 as follows: Douglas county, 3; El Paso, 3; Fremont, 16; Las Animas, 1; Otero, 1 and Pueblo, 2.

SUMMARY REPORT ON DISTRICT No. 3 by R. J. Murray

A matter of paramount importance to the people of the State of Colorado is the resumption of mining activities throughout the State. The resumption of activities are due, of course, to the increased price of gold. Another feature, which I think deserves special mention and which will add to the future of this State, is the large number of migratory prospectors combing the ranges and mountains from New Mexico to the Wyoming line and from Denver to the Utah line, seeking veins or deposits. A thousand or more are placing on the streams and tributaries of this same vast area. Some finds which have been brought in will undoubtedly serve an impetus to mining during the coming year.

Chaffee County—While the monumental granite quarries have not been as active during this year as they have in the past, they have maintained a fairly steady output, with probably 75 to 100 employed in the work. The lime quarries, however, have been active during a greater part of the year, the largest of these being the C. F. & I. quarry at Monarch, producing approximately 1,000 tons daily. One hundred men are employed in the different lime quarries. The fluorspar deposits at Centerville are shipping a fair tonnage to the C. F. & I. plant.

Thirty men are working on a tonnage basis producing this spar. At Granite and Buena Vista a number of small operations are under way with approximately 40 men employed.

Conejos and Costilla Counties—An estimate of 100 prospectors on lode and placer work have been engaged in this work throughout the year 1933.

Eagle County—The Empire Zinc group has shipped approximately 600 tons daily of iron sulphides to Utah and other points during the year, while carrying on a fair amount of development work. The mill operated by this company is still inactive. A number of smaller operations on Battle Mountain and in Belden Canon are producing fair tonnages of high grade gold ores. Approximately 450 men are employed in the mines in this county.

Garfield County—A great many prospectors are in this county, seeking new vanadium fields, together with other minerals known to exist in this county. Some new finds have been reported during the summer, some of which were found in and around the Frying Pan district.

Gunnison County—The marble quarries in this county have operated during the past year with a slightly reduced force compared to former years, several small operations are being carried on at Crystal and in the vicinity of Marble. About 65 men are employed in these operations.

Lake County—Colorado's largest tonnage producer. The Climax Molybdenum Mine, is milling more than 3,800 tons daily of crude ores with a force of nearly 400 men employed. Hundreds of thousands of dollars have been expended by this company during the past year on buildings and new mill installation, a three story pressed brick boarding and rooming house, also a change house of the same material has been completed at this property at a cost of over \$100,000.00. Space forbids mentioning the numerous improvements put in at this mine during the past year.

During the last six months of 1933 Leadville has shown a very marked improvement in the number of smaller operations started. The Ibex group is the largest tonnage producer in the Leadville district proper, also in the number of men employed. Approximately 680 men are employed in Lake County in mining and placering, placer work is being done at Haydens, Twin Lakes, Derry Ranch and California Gulch. If the proposed drainage tunnel goes through at Leadville, thousands of miners and others will be employed in the mines of this camp. The Twin Lakes water tunnel which later may assist in mining in that district is employing 50 men on the Lake County side.

Mineral County—The low price of silver still affects Creede, and has kept the silver mines of that district inactive during the past year. Numerous prospectors however, are in the hills seeking other marketable minerals. The Bentonite Mine at Creede has shipped a fair tonnage during the year with probably ten men employed.

Pitkin County—The Midnight Mine at Aspen, though mainly a silver producer, has mined and milled a fair tonnage of silver-lead-zinc ores, and has operated throughout the year with probably ten men employed. A few other small operations are contributing to the tonnage from this camp. Some work was carried on during the past summer, in the old camp of Independence with fruitful results. A promising find or two was made near the head of the Frying Pan River. On the Pitkin County side of the water tunnel 70 or more men are employed.

Rio Grande County—The Summitville Gold Mines, Inc., are operating in the Summitville district, on the famous Little Annie

group, with ten to fifteen employed. A few shipments of high grade gold ores have been sent out during the summer. A large number of men have spent the past summer prospecting in the Platoro, Jasper, Stunner and Summitville districts. The untimely death of Karl Schuyler caused temporary cessations of activities at the Miser properties. Approximately 20 to 30 men were employed at this property.

Saguache County—A few operations producing fair tonnages of ores have been active during the past year in the Bonanza district, while a large number of prospectors are working throughout this entire county. In several instances good samples of ores have been brought in by these prospectors before being driven out by the snows.

In conclusion, let me say the largest number of prospectors since the boom days of this State were to be found on the hills and mountains during the past year. Through their efforts, new mining districts will no doubt, be opened that will add to the wealth of this great State during the coming years.

GENERAL REVIEW OF MINING ACTIVITIES IN THE SAN JUAN DISTRICT, NO. 4, FOR THE YEAR 1933.

Within the confines of the San Juan Mining District there are several counties having mines with immense deposits of base metal ores which due to the low level of metal prices caused a lack of operating interest in large scale production during the present year. The valuable results obtained by exploratory and development work at considerable depth on the big fissure veins in this district have demonstrated the vastness of ore bodies, and such proof is commanding the favorable attention of the large mining companies of America whose preference is for mines having indications of big tonnage production for long periods of time. Aside from the marked possibilities afforded for base metal ores in this section, the gold production of Ouray, San Miguel, San Juan, Gunnison and La Plata counties for many years, from but shallow openings on properties, will total a value of many millions of dollars. The recent phenomenal discovery of gold in very appreciable quantity in Montezuma County together with the striking evidences of gold values in other veins in said county may well be considered as a valuable addition to the mineral assets of this district. A summary of activities throughout this district during 1933 is as follows:

Archuleta County—Activities consisted of small scale development on two different groups of claims by the owners thereof, and more or less prospecting by a few men at different points in said county.

Dolores County—Operations this year were conducted on six different mining properties, the more extensive of which having been on the Wellington and the Pro Patria mines. Also, several small scale placer operations by individuals at different points along the Dolores river.

Gunnison County—Fourteen different mines were in active operation during the present year. In addition, there were several small scale operations by individual owners of claims, and several minor scale placer projects at different points along the Taylor river in this county.

Hinsdale County—Five different properties were under active operation during the present year.

La Plata County—Active operations have been conducted on fourteen lode mines, and two placer mines, during the present year. Also, several minor scale operations by individual owners of claims, and quite considerable prospecting by persons in different parts of the county.

Montezuma County—Activities this year include operations on four lode mines, and on several small scale placer projects at different points on the banks of the East Mancos river. Since the recent incomparable gold discovery on the Red Arrow property the mineralized areas in this county have attracted widespread interest, and hundreds of claims have been located on different veins in the mineralized belts.

Montrose County—Activities were confined to upkeep and repair work on the numerous openings of the large vanadium ore holdings in this county.

Ouray County—Eleven lode mines were under active operation, and there was cleanup work on two mill tailings dumps, in this county during the greater part of this year.

Saguache County—In the northwestern part of this county two lode mining properties were under operation during the summer months.

San Juan County—Ten different lode mines have been in active operation during the present year. The Shenandoah-Dives mines led all others in the number of men employed, and maintained an ore production of 600 tons daily throughout the year.

San Miguel County—Eight different lode mines, one major scale placer project, and several small placer undertakings along the San Miguel river were in operation during the present year.

New Mill Construction and Improvements Made on mining properties in this district during 1933, comprise the completion of erection of a 400-ton capacity mill on the Gold Run placer property in San Miguel county, the erection of a 20-ton capacity amalgamating mill on the Maybell mining property in San Juan county, the installation of machinery on the Miller Farm placer

claim, and the installation of machinery and erection of buildings on the Golden Rule placer property, in La Plata County, and in progress is the erection of a boarding house on the Red Arrow mining property in Montezuma County.

There are assurances, in the event of even slight advances in the prices of base metals, that there will be resumptions of operations on mines having records for big ore production, and also major scale operations on new mining projects, that will be of greater magnitude both as to tonnage output, and number of men employed, than for many years past in this district.

HISTORICAL NOTE

The Bureau of Mines of the State of Colorado was established by an act of the Tenth General Assembly, approved March 30, 1895. This act repealed a previous act creating an "Inspector of Metalliferous Mines," which was passed in 1889. The Bureau of Mines law established the office of Commissioner of Mines, provided for in the State Constitution, and charged him, among other things, with the supervision of metal mine inspection and the enforcement of laws relating to safety and health in metal mines. Subsequently this was broadened to include "any ore mill, sampling works, smelter, metallurgical plant, rock quarry, clay pit, railroad tunnel, rock excavation or mine of whatsoever kind or character, except coal mines." The Commissioner of Mines was also charged, "as he has opportunity and means," to collect mineral specimens and exhibit the same, to collect books relating to mining and geology, to collect and preserve data regarding mining methods, mining costs, milling, metallurgy, geology, mineral deposits of all kinds, and so on. Aside from the purchase of the Elsnor collection of minerals, very little "opportunity and means" has been granted to the Commissioners for anything except inspection work. The present activities of the Bureau of Mines are treated elsewhere in this report.

COMMISSIONERS OF MINES

Harry A. Lee.....	May 11, 1895-May 10, 1903
E. L. White.....	May 10, 1903-May 10, 1907
T. J. Dalzell.....	May 10, 1907-May 10, 1911
T. R. Henahen.....	May 10, 1911-May 10, 1915
Fred Carroll.....	May 10, 1915-June 1, 1919
Horace F. Lunt.....	June 1, 1919-June 1, 1923
John T. Joyce.....	June 1, 1923-June 1, 1927
John T. Joyce.....	June 1, 1927-June 1, 1931
John T. Joyce.....	June 1, 1931-

PUBLICATIONS OF THE BUREAU OF MINES

BULLETINS

- Bulletin No. 1, Recommendations for Safety Appliance in Mining, Harry A. Lee, Commissioner of Mines, 1896.
- Bulletin No. 2, Precious Metal Production for the year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 3, Mining Laws, Relative to Bureau of Mines Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 4, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1901.
- Bulletin No. 5, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1902.
- Bulletin No. 6, Regulations Relative to the Construction, Equipment and Operation of Metalliferous Mines, Mills and Metallurgical Plants, Recommendations and Mineral Production for 1905, E. L. White, Commissioner of Mines, 1906.
- Bulletin No. 7, Federal and State Laws Relating to Mining, Fred Carroll, Commissioner of Mines, 1916.
- Supplement to Bulletin 7, Mining Laws Enacted by the Twenty-first General Assembly, Fred Carroll, Commissioner of Mines, 1917.
- Supplement No. 2 to Bulletin No. 7, Amendments to the Mining Laws Enacted by the Twenty-second General Assembly, Horace F. Lunt, Commissioner of Mines, 1919.
- Supplement No. 3 to Bulletin 7, Amendments to Laws Relating to Mining Enacted by the Twenty-third General Assembly, Horace F. Lunt, Commissioner of Mines, 1921.
- Supplement No. 4 to Bulletin 7, Amendments to Laws Relating to Mining Enacted by the Twenty-fourth General Assembly, Horace F. Lunt, Commissioner of Mines, 1923.
- Bulletin No. 8, The Oil Shales of Northwestern Colorado, Horace F. Lunt, Commissioner of Mines, 1919.
- Bulletin No. 9, Mine Safety Standards, Horace F. Lunt, Commissioner of Mines, 1920. Out of print, now embraced in Bulletin 11.
- Bulletin No. 11, Federal and State Laws Relating to Mining, John T. Joyce, Commissioner of Mines, 1931.

REPORTS

- Report of Bureau of Mines, Colorado, from its establishment in May, 1895, to November 30, 1896, Harry A. Lee, Commissioner of Mines, 1896.

- Report for the Year 1897, Harry A. Lee, Commissioner of Mines, 1898.
- Report for the Year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Biennial Report for the Years 1899-1900, Harry A. Lee, Commissioner of Mines, 1900.
- Biennial Report for the Years 1901-1902, Harry A. Lee, Commissioner of Mines, 1903.
- Biennial Report for the Years 1903-1904, E. L. White, Commissioner of Mines, 1905.
- Biennial Report for the Years 1905-1906, E. L. White, Commissioner of Mines, 1907.
- Biennial Report for the Years 1907-1908, T. J. Dalzell, Commissioner of Mines, 1909.
- Biennial Report for the Years 1909-1910, T. J. Dalzell, Commissioner of Mines, 1911.
- Biennial Report for the Years 1911-1912, T. R. Henahen, Commissioner of Mines, 1913.
- Biennial Report for the Years 1913-1914, T. R. Henahen, Commissioner of Mines, 1914.
- Biennial Report for the Years 1915-1916, Fred Carroll, Commissioner of Mines, 1916.
- Biennial Report for the Years 1917-1918, Fred Carroll, Commissioner of Mines, 1919.
- Annual Report for the Year 1919, Horace F. Lunt, Commissioner of Mines, 1920.
- Annual Report for the Year 1920, Horace F. Lunt, Commissioner of Mines, 1921.
- Annual Report for the Year 1921, Horace F. Lunt, Commissioner of Mines, 1922.
- Annual Report for the Year 1922, Horace F. Lunt, Commissioner of Mines, 1923.
- Annual Report for the Year 1923, John T. Joyce, Commissioner of Mines, 1924.
- Annual Report for the Year 1924, John T. Joyce, Commissioner of Mines, 1925.
- Annual Report for the Year 1925 was fully prepared but because of lack of funds was not printed. The manuscript is on file in the office of the State Bureau of Mines.
- Annual Report for the Year 1926, John T. Joyce, Commissioner of Mines, 1927.
- Annual Report for the Year 1927, John T. Joyce, Commissioner of Mines, 1928.
- Annual Report for the Year 1928, John T. Joyce, Commissioner of Mines, 1929.

Annual Report for the Year 1929, John T. Joyce, Commissioner of Mines, 1930.

Annual Report for the Year 1930, John T. Joyce, Commissioner of Mines, 1931.

Annual Report for the Year 1931, John T. Joyce, Commissioner of Mines, 1932.

Annual Report for the Year 1932, John T. Joyce, Commissioner of Mines, 1933.

At the time this report goes to press, there are available for distribution copies of the Annual Reports for 1921, 1922, 1926, 1928 and 1932, 1929, 1930 and 1931 out of print, and Bulletin 11, "Mining Laws of Colorado." The price of Bulletin 11 is 50 cents, also Bulletin 8; all other available publications are free. The publications not mentioned in this paragraph are exhausted, but copies may be consulted in many of the public, state and college libraries throughout the country.

Note—The Colorado Geological Survey has published a number of geological reports and maps, a list of which may be obtained from the head of the Geology Department of the University of Colorado, Boulder, Colorado.

TABLE I

PRODUCTION OF THE PRINCIPAL METALS IN COLORADO IN 1932 AND 1933¹

County	GOLD**				SILVER¹				COPPER				LEAD				ZINC				TOTAL VALUE		Increase or Decrease	County		
	1932		1933		1932		1933		1932		1933		1932		1933		1932		1933		1932	1933				
	Fine Ounces	Value	Fine Ounces	Value²	Fine Ounces	Value	Fine Ounces	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Value	Value				
Adams	11.90	\$ 246	16	\$ 331	4	\$ 1	3	\$ 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$ 247	\$ 332	+	\$ 85	Adams
Arapahoe	1.55	32	2	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	41	+	9	Arapahoe
Boulder	3,865.55	79,908	4,384	90,625	9,695	2,731	11,715	4,041	.....	.....	.....	.....	9,000	\$ 270	2,000	\$ 74	.....	.....	.....	.....	82,912	94,740	+	11,828	Boulder
Chaffee	150.11	3,103	418	8,641	711	209	2,036	702	.....	.....	400	\$ 26	6,000	160	17,000	629	.....	.....	.....	.....	3,492	9,998	+	6,506	Chaffee
Clear Creek.....	5,813.42	120,174	5,586	115,473	28,121	7,931	32,881	11,345	6,000	\$ 378	13,000	832	75,000	2,250	226,000	8,362	.....	.....	.....	.....	130,733	136,012	+	5,279	Clear Creek
Costilla	7.64	158	16	331	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	158	332	+	174	Costilla
Custer	1.16	24	3	62	14	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28	62	+	34	Custer
Delta	5	103	103	+	103	Delta
Denver	31.25	646	21	434	7	2	9	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	648	437	—	211	Denver
Dolores	150	3,101	5,997	2,069	11,000	407	5,577	+	5,677	Dolores
Douglas	34.15	706	16	331	7	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	708	331	.....	377	Douglas
Eagle	2,901.63	59,982	4,356	90,047	1,110,819	315,251	1,387,394	513,151	5,620,000	354,060	8,119,600	519,654	441,000	13,230	5,000	165	.....	.....	.....	.....	740,523	1,123,037	+	382,514	Eagle
Elbert	27.62	571	12	248	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	671	248	—	323	Elbert
Fremont	31.06	642	5	103	4	1	1	.....	.....	.....	.....	.....	.....	.....	3,000	111	.....	.....	.....	.....	643	214	—	429	Fremont
Garfield	2	41	41	+	41	Garfield
Gilpin	15,879.24	328,253	4,075	84,238	24,943	7,031	6,729	2,321	46,000	2,898	12,000	768	189,000	5,670	72,000	2,664	84,000	\$ 2,520	.....	.....	346,375	89,991	—	256,384	Gilpin
Grand	1.79	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37	.....	.....	37	Grand
Gunnison	115.47	2,387	1,141	23,649	67	16	5,758	1,986	.....	.....	12,000	768	.....	.....	15,000	555	.....	.....	.....	.....	2,403	26,958	+	24,655	Gunnison
Hinsdale	69.13	1,429	.....	.....	99	28	.....	.....	.....	.....	.....	.....	.....	.....	2,000	66	.....	.....	.....	.....	1,517	.....	—	1,517	Hinsdale
Huerfano	1.79	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37	.....	—	37	Huerfano
Jackson	3.24	67	5	103	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67	103	+	36	Jackson
Jefferson	11.61	240	361	7,463	.....	.....	59	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	240	7,463	+	7,243	Jefferson
Lake	6,274.04	129,696	10,641	219,969	16,766	4,728	38,231	13,190	6,000	378	16,000	1,024	152,000	4,560	960,000	35,520	126,000	3,780	2,491,000	\$107,113	143,142	376,816	+	233,674	Lake	
La Plata.....	1,468.52	30,357	1,895	39,173	6,968	1,965	14,778	5,099	.....	.....	.....	.....	7,000	210	10,000	370	.....	.....	.....	.....	32,532	44,642	+	12,110	La Plata
Larimer	2.71	56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56	.....	—	56	Larimer
Mesa	1.74	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36	.....	—	36	Mesa
Mineral	9	186	186	+	186	Mineral
Moffat	60.42	1,219	234	4,837	4	1	1	1,250	4,837	+	3,687	Moffat
Montezuma	1.89	39	176	3,638	.....	.....	151	52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39	3,690	+	3,651	Montezuma
Montrose	99.70	2,061	169	3,494	28	8	52	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,069	3,512	+	1,443	Montrose
Ouray	12,478.28	257,949	9,915	204,961	47,780	13,474	53,536	18,470	90,000	5,670	165,000	10,560	314,000	9,420	261,000	9,657	8,000	240	.....	.....	286,753	243,648	—	43,105	Ouray
Park	125,749.70	2,599,477	58,948	1,218,563	63,220	17,828	34,415	11,873	60,300	3,799	40,000	2,560	1,615,000	46,450	1,318,000	48,766	.....	.....	.....	.....	2,609,664	1,281,762	+	1,387,792	Park
Pitkin	91.09	1,833	9	186	45,993	12,970	108,555	37,452	.....	.....	.....	.....	228,000	6,840	181,000	6,697	.....	.....	.....	.....	21,693	44,336	+	22,642	Pitkin
Rio Grande	9.00	186	15	310	7	2	28	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	188	320	+	132	Rio Grande
Routt	21.72	449	9	186	14	4	5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	453	188	+	265	Routt
Saguache	58.63	1,212	33	682	32	9	2,252	777	.....	.....	3,000	192	.....	.....	85,000	3,145	.....	.....	.....	.....	1,221	4,796	+	3,575	Saguache
San Juan.....	28,367.97	586,418	24,718	510,966	491,195	138,517	413,061	142,506	1,568,000	98,784	1,540,000	98,540	1,239,000	37,170	1,170,000	43,290	.....	.....	.....	.....	860,889	795,322	—	65,567	San Juan
San Miguel	3,315.72	68,542	2,693	55,669	4,745	1,338	15,923	5,494	1,000	63	27,000	1,718	21,000	630	137,000	5,069	.....	.....	.....	.....	70,573	67,960	—	2,613	San Miguel
Summit	1,601.02	32,096	2,777	57,406	1,479	417	2,830	977	700	44	.....	.....	1,000	30	37,000	1,369	.....	.....	.....	.....	33,687	59,752	+	26,165	Summit
Teller	109,366.49	2,260,806	109,190	2,257,158	7,663	2,161	6,240	2,153	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,262,967	2,259,311	—	3,656	Teller
Total	317,927.95	\$6,572,154	242,008	\$5,002,749	1,860,408	\$524,635	2,242,646	\$773,713	7,398,000	\$466,074	9,948,000	\$636,672	4,299,000	\$128,970	4,610,000	\$166,870	218,000	\$ 6,540	2,491,000	\$107,113	\$7,698,373	\$6,687,117	—	\$1,011,256		

¹Actual 11½ months figures, with estimate for the last half of December.²At legal coinage value of \$20.671835 per fine ounce. Calculating gold produced from August through December at the world price and Reconstruction Finance Corporation price would add approximately \$970,000.³Includes placer production.⁴Average value of metals: Gold, \$20.671835 per fine ounce; silver, \$0.345 per fine ounce; copper, \$0.064 per pound; lead, \$0.037 per pound; zinc, \$0.043 per pound.⁵Average value of metals: Gold, \$20.671835 per fine ounce; silver, \$0.282 per fine ounce; copper, \$0.063 per pound; lead, \$0.030 per pound; zinc \$0.030 per pound

THE VALUE OF STATE INSPECTION IN LESSENING MINE ACCIDENTS

Colorado had the highest average in mine accidents of all the states in the Union for the years 1931 and 1932. A deplorable record due largely to carelessness, that should and can be overcome by constant alertness on the part of the management and employees themselves by a strict observance of our standards of safety laws and departmental regulations. I wish to emphatically impress upon both the operators and employees the importance of taking every possible precaution to reduce accidents to the lowest minimum by giving more attention and less disregard of the orders and recommendations of this department and thereby not only making a material saving for operators but also a great saving to this state.

With that thought in mind I am again reproducing my article on this subject from my report for 1930.

"Life is the most precious of all man's possessions and the utmost effort on the part of the state, industry, and the individual is justified in the conservation of the lives and unimpaired well-being of the worker. The State of Colorado in 1908 recognized its responsibility for the safety of the mine worker by the enactment of statutes covering the establishment of a department to be known as the Bureau of Mines of the State of Colorado with a commissioner and inspectors and delegating to this department as one of its principal duties the examination of mines, mills, and quarries, as to safety and health conditions. This department has the power to order corrected, under penalty of heavy fine, dangerous conditions found.

"By legislative act of 1911 the state was divided into four inspection districts for the purpose of rigid enforcement of accident prevention laws.

"The Colorado Bureau of Mines, therefore, is vitally interested in the lessening of accidents in mines. Its inspectors examine into safety conditions at mines, mills, smelters, and quarries and make a diligent investigation of fatal and serious accidents and advise where possible means of preventing a repetition of such accidents. Reports on all mine, mill, smelter, and quarry accidents which are furnished by the operators to the State Industrial Commission are studied and compiled for publication in

the annual report of this department. There were recently compiled in this department statistics on all metal mine accidents in Colorado for the present and past two eight-year periods, the summary of which is appended.

“These figures demonstrate that the lessening of accidents in Colorado metal mines as in those of other states requires continued united effort on the part of mine operators and miners and continued inspection and guidance by an adequate force of state mine inspectors.

“The value of state inspection in lessening mine accidents is difficult to enumerate in units only of dollars and cents and has a value to the industry and the public far greater than can be measured on a direct cost basis. We cannot usually say in any particular mine that a certain number of lives have been saved by the righting of recognized dangerous conditions or by safer equipment and practices, but we do know that taking the state or country as a whole dangerous conditions, unsafe equipment, and unsafe practices in mines will each year take its toll of life and suffering and that the righting of such conditions and practices will inevitably save life. We know at the end of each year how many lives have been lost in our mines but we cannot definitely say how many lives have been saved by inspection service; that many lives are thus saved is self-evident, which is borne out by the figures mentioned. State inspection service results not only in the correction of dangerous conditions and practices but it also spurs the mine operator to increased thought and effort toward safety and the miner to increased carefulness. Both miner and operator are reminded by these inspectors that the state has a very definite interest in both the personal security of the miner and the continued successful operation of the mine. Also, the inspector through his visits to numerous mines and through information collected by the department is able to suggest numerous measures which make toward safer and more economical mine operation.

“Summarizing, a state mine inspection department is of very definite value in reducing accidents, promoting the safety and welfare of miner and operator, and in assisting in the successful operation of mines. A state mine inspection department can only operate with proper efficiency and success in reducing accidents if it has an adequate number of inspectors furnished with funds adequate for regular inspections and if it has the cordial and

hearty support of the mine operator, the miner, and the public. The Colorado State Bureau of Mines pledges its continued effort toward the reduction of mine accidents and believes that in this most important work it will have, as it has always had from the Colorado mine operators, continued and even more hearty support from that highly important factor in the prosperity of our state."

SUMMARY

Three 8-year periods on the basis of 100,000 shifts.

From 1906 to 1914, inc., 23,100,000 shifts were worked, 511 men were killed, ratio per 100,000 shifts.....	2.22
From 1915 to 1922, inc., 25,468,000 shifts were worked, 342 men were killed, ratio per 100,000 shifts.....	1.35
From 1923 to 1930, inc., 16,148,154 shifts were worked, 167 men were killed, ratio per 100,000 shifts.....	1.00
From 1931 to 1933, inc., 4,028,850 shifts were worked, 35 men were killed, ratio per 100,000 shifts.....	0.87

Acknowledgment:

Thanks are due to Mr. E. H. Denny of the U. S. Bureau of Mines, for his valued suggestions and hearty cooperation with this department in matters concerning the safety of employees in and about metal mines.

FATAL ACCIDENTS

Underground.

February 27, John Lynch, of Climax, age 39, married, mucker, while employed by the Climax Molybdenum Company, Lake County. Employee was coming off shift with his partner, they walked over some loose muck lying on a grizzly. Lynch fell through to the chute. Muck was fine and Lynch was suffocated. Unavoidable accident.

March 11, Charles Leon Davis, of Alma, age 45, unmarried, while employed by the London Mountain Gold Mining Company, Park County, was killed instantly by a fall of rock. Mr. Davis was preparing to place a set of timbers in a drift on the McDon-old vein. All loose rock was picked down and the back was sounded with a double jack to detect any additional loose rock. While cleaning up the rock that had been picked down and in a stooped position, a rock fell from the back, striking Mr. Davis on the back, which caused his death. Unavoidable accident.

June 9, John Calhoun, of Durango, age 32, unmarried, employed at the Sarah S. mine, La Plata County, as a trammer. Mr. Calhoun was a lessee on this property; at the time of the accident he was pushing a car loaded with rock toward the portal of the tunnel and when at a point 50 feet distant from the said portal the car struck against a post in a timber set, knocking it down, and thus permitting the soft portion of the roof at this point to cave and bury lessee. Carelessness of injured, was dead when body was recovered from under the cavein.

July 12, Frank Pilch, of Alma, age 37, married, employed as a miner by the London Gold Mining Company on the London mine, Park County. The previous shift had blasted a round of holes, which shot out the stulls that were placed under the hanging wall. Mr. Pilch, after picking down the loose rock, started to work under same, without waiting for timbermen to replace the stulls, rock fell from the back, striking him on the head, killing him instantly. Carelessness of injured.

November 8, John Gobelman, of Central City, age 60, miner, married, while employed at the Chain O' Mines mine, Gilpin County, was returning to his place of work after lunch when an empty train of cars overtook him; he stepped aside to let the train pass and was caught by the second car, which crushed him

against the timbers, causing injuries that later resulted in death. Carelessness of injured.

November 15, Raymond Keown, age 25, motorman, married, of Gilman, while employed at the Eagle Mines, Eagle County, was killed instantly while operating a 1½-ton locomotive. He was going in beyond a chute in order to couple a loaded car to his motor, he apparently failed to move his body so as to clear the chute lip on his way out, and his crushed body was found between chute lip and top of loaded car crushed to death. Might have been prevented by warning between the chutes.

December 20, Dominick I. Turney, of Victor, age 25, unmarried, miner, while leasing on the Portland mine, Teller County, fell down a slope from the level on which he was working to boulders in a cave pile 70 feet below, which resulted in death three hours later. Carelessness of injured.

Shaft.

June 14, Charles Huddine, of Cripple Creek, age 51, married, miner, while employed at the Ellis mine, Teller County, was working at the water level in shaft when a piece of cribbing broke loose from above and struck Mr. Huddine on the back of his head, breaking his neck. Unavoidable accident.

October 14, Samuel A. English, of Pueblo, age 61, operator, married, while prospecting on the Dig Gold property, Teller County, started down the ladderway of the Burke shaft with an electric battery lamp, when he was overcome by carbon dioxide gas and fell from the ladder to the station below. Carelessness of injured.

Surface.

June 21, Ed Langhoff, of Silverton, age 62, unmarried, tunnel contractor, while employed by the Silverton Syndicate, San Juan County, went from the tunnel in which he was working to get a few sticks of powder in an old tunnel about 400 feet away: his partner heard an explosion, left the tunnel and ran toward where the powder was kept. He found Langhoff's body along the course of the trail. No eye witness to accident.

August 28, L. E. Loughry, of Denver, age 27, tram operator, while employed at the American mine, Park County, was at the lower station of the aerial tram when the second bucket on the line became detached from the traction cable, striking the first bucket, detaching it also; the two loose buckets entered the lower

station at an unusual speed, the first bucket striking Mr. Loughry. He died from his injuries August 30th. Unavoidable accident.

Quarries.

August 25, Howard E. Haynes, of Garfield, age 42, gasoline shovel operator, married, while employed at the Monarch quarry, Chaffee County, was operating a gasoline shovel building a road alongside of quarry. The shovel apparently slipped out of gear and started to run down grade, struck a bank and turned over on its side, catching Haynes before he could jump clear. Killed instantly.

Rock Excavation (Tunnel).

December 11, Ralph Neuman, of Pueblo, age 33, track foreman, married, while employed by the Platt Rogers, Incorporated, contractors, on the Twin Lakes Water Diversion tunnel, Lake County, was fastening a set of fish plates on the end of a pair of stub rails, in a stooped position, when a half-inch reducer blew off from the end of a six-inch air line and struck him on the head, killing him instantly.

TABLE II
**DAYS OF EMPLOYMENT IN AND ABOUT MINES, MILLS AND SMELTERS AND NUMBER OF MEN
 KILLED AND INJURED PER 10,000 DAYS OF EMPLOYMENT DURING THE YEARS 1932 AND 1933.***

	Killed			Serious Injury				Slight Injury			
	1932		1933	(Time Lost Over 14 Days)		1933		(Time Lost Under 14 Days)		1932	
	1932	1933	1933	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days
Employment Days of	1932	1933									
Underground	540,120	1,100,000		7	.1296	148	2.740	163	1.481	254	4.702
Surface	212,406	300,000		3	.1412	43	2.024	48	1.600	69	3.248
Mills	207,998	135,250		..	....	6	.2885	2	.1478	28	1.346
Smelters	69,656	70,750		1	.1435	5	.7177	3	.4239	1	1.409
Quarries	50,467	80,750		..	....	7	1.387	10	1.238	15	2.972
Placers	25,983	40,000		..	....	4	1.538	9	2.250	3	1.154

*Four reported fatalities, two by asphyxiation and two by falling rock are not included in the tabulation of mine accidents, since they were not employed by operating mines but were promiscuously entering old and exceedingly dangerous mines, long idle, in search of desirable leases.

There was, in 1933, one fatal accident in rock excavation, the inspection of which, under the recent law, was placed under the jurisdiction of this office, and cannot be properly classed as an accident in mine or mill.

12.	Suffocation from natural gases.....	..	..	..	..	..	..	..	..
13.	Inrush of water.....	..	..	..	..	..	..	..	..
14.	Nails and splinters.....	..	..	..	..	..	..	..	..
15.	Other causes—	..	..	..	..	..	..	..	..
(a)	Falling objects other than 1 and 2.....	..	..	..	..	1	1	9	16
(b)	Flying objects other than 2 (c).....	..	..	..	..	..	..	2	18
(c)	Burns .....	..	..	..	..	..	..	2	7
(d)	Miscellaneous .....	..	..	..	..	..	2	26	47
Total	.....	6	7	..	..	3	14	134	234
SHAFT	.....	..	..	..	..	..	..	..	..
16.	Falling down shaft.....	1	..	..	..	..	..	..	1
17.	Objects falling down shaft.....	..	1	..	..	..	..	1	..
18.	Breaking of cables.....	..	..	..	..	..	..	..	..
19.	Overwinding .....	..	..	..	..	..	..	..	..
20.	Cage, skip or bucket—	..	..	..	..	..	..	..	..
(a)	Runaway .....	..	..	..	..	..	..	..	1
(b)	Riding with rock or ore.....	..	..	..	..	..	..	..	..
(c)	Riding with timber or tools.....	..	..	..	..	..	1	..	..
(d)	Struck by .....	..	..	..	..	..	1	2	3
21.	Other causes.....	..	1	..	..	1	2	8	20
Total	.....	1	2	..	..	1	2	10	24
SURFACE SHOPS AND PLANTS									
22.	Haulage—	..	..	..	..	..	..	..	..
(a)	Hand and animal.....	..	..	..	..	..	1	2	1
(b)	Mechanical	1	..	..	..	..	..	2	3
23.	Railway cars and locomotives.....	..	..	..	..	..	..	..	..
24.	Run or fall of ore in or from bins.....	..	..	..	..	..	..	1	1
25.	Falls of persons.....	..	..	..	..	..	..	3	18
26.	Nails and splinters.....	..	..	..	..	..	..	1	3
27.	Hand tools, axes, bars, etc.....	..	..	..	..	..	..	2	1
28.	Electricity—	..	..	..	..	..	..	..	..
(a)	Direct contact with trolley wire.....	..	..	..	..	..	..	..	..
(b)	Tool or bar striking trolley wire.....	..	..	..	..	..	..	..	..
(c)	Contact with motor.....	..	..	..	..	..	..	..	..
(d)	Other causes.....	..	..	..	..	..	..	2	1
29.	Machinery	1	1	..	..	..	2	4	8

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1932 AND 1933—Continued.

30. Other causes—	Fatal	Permanent Total Disability		Serious Injuries (Time lost over 14 days)—		Slight Injuries (Time lost under 14 days)	
		1932	1933	1932	1933	1932	1933
(a) Falling objects.....	3	10
(b) Flying objects.....	1	..	..	..	..	2	8
(c) Burns.....	1	..	1	3
(d) Miscellaneous.....	..	1	..	..	22	10	13
Total.....	3	2	..	1	42	44	76
PLACER MINES—DREDGING							
1. Machinery.....	1	4	2
2. Electricity.....	2
3. Boiler explosions or bursting of steam pipes.....	1	..	..
4. Falls of persons.....	1	1	2
5. Hand tools.....	1	1	8
6. Other causes.....	1	..	2	15
Total.....	1	4	8	29
ORE DRESSING AND MILLING							
1. Haulage system—	1	..	..
(a) Cars and motors.....
(b) Mechanical conveyors.....	1	1
2. Railway cars and locomotives.....	1	..
3. Crushers, rolls or stamps.....
4. Tables, jigs, etc.....	2	2
5. Other machinery.....	4
6. Falls of persons.....	5	..
7. Suffocation in ore bins.....
8. Falling objects (rocks, timber, etc.).....	1	1	1
9. Cyanide or other poisoning.....
10. Scalding (steam or water).....	1	..	..
11. Electricity.....	5	..

[illegible][illegible]

TABLE IV
CLASSIFICATION ACCORDING TO CAUSE AND OCCUPATION OF THE FATAL ACCIDENTS THAT
OCCURRED IN THE METAL MINING AND QUARRYING INDUSTRY OF COLORADO
IN THE YEARS 1932 AND 1933.

MINES																
	Superintend- ents, Fore- men and Engineers		Machine Men and Helpers		Miners		Loaders, Shovelers, Muckers and Trammers		Trackmen, Pipemen, Pumpmen and Com- pressormen		Cage Tenders and Station Cagers		Carpenters, Timber- men and Helpers		Elec- tricians, Motor- men and Helpers	
	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933
UNDERGROUND																
1.	1	..	..	1	2	1	..	..	..	..	..	1	..	..
2.
3.
4.
5.	1	..	..	..	..	..	..	..	..	..	1
6.	1	..	1	1	..	..	..	..	..	..	..	..	..	..
7.	1	..	..	..	..	..	..	..	..
8.
9.	1	..	..	..	..	..	..	..	..	..
10.
11.
12.
13.
14.
15.
Totals	2	..	1	3	3	2	..	..	..	..	..	1	..	1
SHAFTS																
16.	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
17.

SURFACE ACCIDENTS

[illegible]

9. Scalding (steam or water) . . . . .	..	..	..	..	..
10. Electricity . . . . .	..	..	..	..	..
11. Hand tools, axes, bars, etc. . . . .	..	..	..	..	..
12. Nails, splinters, etc. . . . .	..	..	..	..	..
13. Burns from matte, slag or molten metal (pouring or spilling) . . . . .	..	..	..	..	..
14. Hot metal explosions . . . . .	..	..	..	..	..
15. Other causes . . . . .	..	..	..	..	..
Totals	—	—	—	1	..

QUARRIES, CLAY PITS, OIL SHALE MINES AND ROCK EXCAVATIONS

	Superintendent- Foremen		Teamsters		Drillmen		Laborers	
	1932	1933	1932	1933	1932	1933	1932	1933
1. Haulage
2. Machinery
3. Other causes	1
Totals	—	—	—	—	—	—	—	1

PLACERS AND DREDGES

	Miners		Laborers		Dredgemen	
	1932	1933	1932	1933	1932	1933
1. Machinery
2. Electricity
3. Other causes
Totals	—	—	—	—	—	—

ROCK EXCAVATIONS

	Superintendent- Foremen		Laborers	
	1932	1933	1932	1933
1. Falls of persons . . . . .	..	..	..	..
2. Machinery . . . . .	..	..	..	..
3. Other causes	1	2	2	2
Totals	—	—	—	—

LIST OF OPERATING MINES IN VARIOUS COUNTIES IN COLORADO

OPERATING MINES IN BOULDER COUNTY, 1933

(No report was filed where location, name or address is not given)

Name of Mine	Location	Operator	P. O. Address	Character of Product
Alaska Tunnel (a)	Ward	Alaska Gold Mines Corporation	E. and C. Building, Denver	Gold, Silver
Alice Dump (a)	Jamestown	Two Brothers Mining Company	1457 Washington St., Denver	Gold, Silver
Atlantic (a)	Jamestown	N. A. Brown	Jamestown	Gold, Silver
Aurum (a)		Horton-Dunning	None Given	Gold, Silver
Baxter (a)	Ward	O. O. Alexander and Associates	Ward	Gold, Silver
Big Five Tunnel (a) (m)	Ward	Stanley M. Walker and Associates	1320 Humboldt St., Denver	Gold, Silver
Black Bird (a)	Boulder	A. V. Dickson and W. S. Leonard	Gold Hill	Gold
Caladonia (a)	Jamestown	Chaney Fox and Associates	Orchard	Gold, Silver
California (a)	Salina	Walker Broadwater and Associates	2226 Pearl St., Boulder	Gold, Silver
Cetstial	Ward	M. Brummelle and Associates	Ward	Gold, Silver
Chings Kahn (a)	Boulder	Golden Bell Incorporated	744 Spruce St., Boulder	Gold, Silver
Clipper and Croesus	Boulder	Consolidated Engineering Company	1040 14th St., Boulder	Gold, Silver
Cold Spring Mine (m)	Gold Hill	Saint Joe Mining and Milling Co.	810 Pearl St., Boulder	Gold (c)
Cold Springs Mine (m)	Nederland	Wolf Tongue Mining Company	310 1st National Bank Building, Boulder	Tungsten
Columbus Lode (a)	Gold Hill	Two Sisters Mines, Incorporated	Gold Hill	Gold, Silver
Copper King (a)	Gold Hill	Cobalt Gold Mining Company	615 U. S. National Bank Bldg., Denver	Gold, Silver, Cobalt*
Corning (a)	Ward	Larson Mining and Milling Trust	1319 Spruce St., Boulder	Copper (c)
Cross	Nederland	Cross Gold Mining Company	Ward	Gold, Silver (c)
Delaware Group (a)	Jamestown	Bushelt Mining Company	1457 Washington St., Denver	Gold
Denver Group (a)	Eldora	Arthur W. Robertson and Associates	Eldora	Gold, Silver
Dime (a)	Boulder	John Johanson and Associates	Boulder, Salina Star Route	Gold, Silver (c)
Dolittle (a)	Boulder	Robert Duce and Associates	Boulder, Salina Star Route	Gold, Silver
Fairview (m) (a)	Nederland	American Mines and Smelter Co.	900 Lincoln St., Boulder	Gold, Silver, Lead
Five Brothers (a)	Boulder	J. C. Hawk and Associates	1141 11th St., Boulder	Gold, Silver
Fortune (a)		J. G. Clark	Boulder	Gold, Silver
Gold Dust Group	Boulder	B. F. Hill and Associates	2105 Spruce St., Boulder	Gold
Golden Bell (a)	Jamestown	William Andrew and Associates	Louisville	Gold (c)
Golden Reward (a)	Nederland	E. C. Spray and H. C. Gilbert	Nederland	Gold, Silver (c)
Grand Republic (a)	Gold Hill	J. G. Clark	Boulder	Gold
Gray Eagle	Gold Hill	Arthur Johnson and Associates	927 Pine St., Boulder	Gold, Silver
Great West Group (a)	Ward	Mines Investment Company	Ward	Gold, Silver
Herald (a)	Sugar Loaf	Earl Craig and Associates	Box 386 Boulder	Gold, Silver
Hereafter (a)	Magnolia	White Brothers	Magnolia	Gold, Silver
High Line Tunnel (a)	Gold Hill	Two Brothers Mining and Milling Co.	1457 Washington St., Denver	Gold, Silver
Ingram (a)	Salina	Joe Griesedieck	3663 Forest Park Boulevard, St. Louis, Mo.	Gold, Silver

John Jay (a).....	Jamestown	Associated Metal Mines, Incorporated. 634 Cooper Building, Denver...	Gold, Silver
Keokong.....	Magnolia	Dr. R. O. Smith and Associates..... 424 Republic Building, Denver...	Gold
King Wilhelm (a).....	Jamestown	C. B. Simkins..... Jamestown	Silver
Little Johnnie (m) (a).....	Boulder	A. S. Mitchell and Associates..... Boulderado Hotel, Boulder...	Gold, Silver (c)
Logan (a).....	Boulder	W. W. Giggly and Associates..... 1727 18th St., Boulder	Gold, Silver
Mack.....	Gold Hill	Thomas Lay and Associates..... Longmont	Gold, Silver
May Claim (a).....	Boulder	Walter N. Ramsey..... Box 377, Boulder	Gold (c)
Nancy Group (a).....	Boulder	Metals Production Company..... Citizens National Bank Bldg., Boulder	Silver
Nelson and Milian.....	Gold Hill	Constance E. Corner..... Gold Hill	Gold
Norway (a).....	Eldora	Prosperity Gold Mines, Incorporated..... Greeley	Gold
Orphan Boy (m).....	Boulder	More Mining and Milling Company..... Boulder, Salina Star Route.....	Gold
Pandora.....	Nederland	Pandora Metals Company, Inc..... 227 E. & C. Building, Denver...	Gold, Silver, Cop-
Paymaster (a).....	Boulder	M. C. Morrison..... 2445 Walnut St., Boulder	per (c)
Richmond (a).....	Salina	Richmond Gold Producers..... 436 Cooper Building, Denver...	Gold, Silver
Rio Tinto.....	Jamestown	Associated Metal Mines, Incorporated. 634 Cooper Building, Denver...	Gold, Silver
Rocky Mountain Mammoth (a).....	Magnolia	L. C. Itchell and Associates..... 56 Fox St., Denver	Gold, Silver
Saint Louis (m).....	Nederland	Richard Harvey and Associates..... 2900 Champa St., Denver...	Gold, Silver
Shirley (a).....	Eldora	C. F. Payne and Associates..... 4489 Lincoln St., Denver...	Gold, Silver
Slide (a).....	Gold Hill	Ward E. Terry and Associates..... 930 14th St., Boulder	Gold, Silver
Smuggler (m) (a).....	Lyons	Smuggler Mining Company..... 4509 Valledo St., Denver	Gold (c)
Spencer Mountain (a).....	Eldora	Jane Eggleston Goodykoontz..... Eldora	Gold, Silver (c)
Sureshot (a).....	Ward	Sargent and Pyle..... Ward	Gold
Tumbourne (m) (a).....	Boulder	Equity Reduction Company..... 1805 Spruce St., Boulder	Gold
Times (a).....	Gold Hill	C. G. Walker and Associates..... 3519 Federal Blvd., Denver...	Gold, Silver
Twin Brothers (a).....	Boulder	D. D. Weber..... Boulder, Star Route.....	Gold, Silver
United Empire.....	Boulder	United Empire Gold Mines Company..... Citizens National Bank Bldg., Boulder	Silver
Victory (a).....	Boulder	A. S. Mitchell and Associates..... Boulderado Hotel, Boulder	Gold
Wano (m) (a).....	Jamestown	Wano Milling and Power Company..... Continental Oil Bldg., Denver...	Gold
Washington (a).....	Boulder	Charles C. Hagnan & Alex Johnson. 1010 Marine St., Boulder	Gold, Silver
White Raven (a).....	Ward	W. G. Paulding..... Ward	Gold, Silver
Wood Mountain (m) (a).....	Boulder	Mountain Plains Mining Co., Inc..... 900 Lincoln St., Boulder	Gold, Silver
Yellow Jacket (a).....	Boulder	C. H. Craig..... 1107 10th St., Boulder	Gold (c)

OPERATING MINES IN CHAFFEE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Granite Tunnel (a).....	Granite	H. and H. Mining Company.....	Granite	Gold
Mary Murphy No. 4 Tunnel Romley	Tunnel Romley	Sid Burleson and Associates.....	Buena Vista.....	Gold, Silver, Lead, Zinc
(a) Operated for part of the year only.	(c) No production reported in 1933.	(m) Mill operated in connection with mine.		

OPERATING MINES IN CLEAR CREEK COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Argo Tunnel (m) (a).....	Idaho Springs.....	George E. Collins.....	Boston Building, Denver.....	Gold, Silver, Lead, Copper, Zinc (c), see mill
Azada (a).....	Silver Plume.....	George Leece and Associates.....	Georgetown.....	Gold, Silver, Lead
Belman (a) (m).....	Idaho Springs.....	Engineers Mining Company, Inc.....	724 Cooper Building, Denver.....	Gold, Silver
Bismark (a).....	Idaho Springs.....	Harry Short and Associates.....	Idaho Springs.....	Gold, Silver, Lead, Copper
Capital Prize (a).....	Georgetown.....	Capital Prize Mining Company, Inc.....	Exchange National Bank, Colorado Springs.....	Gold, Silver (c)
Centennial (m) (a).....	Georgetown.....	Wesley Hamilton & M. E. Anderson.....	Georgetown.....	Gold, Silver
Central Tunnel.....	Idaho Springs.....	North American Mining Company.....	404 Interstate Trust Building, Denver.....	Gold, Silver
Century (a).....	Idaho Springs.....	Century Mines Company.....	Idaho Springs.....	Gold, Silver
Champion (a).....	Idaho Springs.....	C. V. Wolgamott and Associates.....	Idaho Springs.....	Gold, Silver (c)
Clear Creek and Gilpin Tunnel (a).....	Dumont.....	Corporation of American Mines.....	215 West Beach, Long Beach, N. Y.....	Gold, Silver, Copper
Clinton (a).....	Empire.....	Clinton Mining Company.....	Georgetown.....	Gold, Silver (c)
Commonwealth Tunnel (m) (a).....	Georgetown.....	Edward Elze and Associates.....	Georgetown.....	Gold, Silver, Lead
Conqueror (a).....	Empire.....	Viking Gold Mines Corporation.....	1441 Welton St., Denver.....	Gold, Silver (c)
Elliot Barber (m) (a).....	Idaho Springs.....	Alma Lincoln Mining Company.....	702 U. S. National Bank Bldg., Denver.....	Gold, Silver
Eva D. (a).....	Idaho Springs.....	Joe Diechel.....	Idaho Springs.....	Gold, Silver
Freeland Tunnel Group (a).....	Idaho Springs.....	Freeland Gold Mines, Incorporated.....	215 Broadway, Denver.....	Gold, Silver (c)
Gold Dirt (a).....	Empire.....	J. Hildebrand.....	Empire.....	Gold
Golden Eagle (m).....	Empire.....	P. and F. Mathews & J. Hutchinson.....	Empire.....	Gold
High Five (a).....	Georgetown.....	Argentine Gold Mining Company.....	212 Denver Theatre Building, Denver.....	Gold, Silver, Copper
Horn, Joseph A. (a).....	Idaho Springs.....	J. B. Hartman.....	Box 302, Idaho Springs.....	Gold, Silver (c)
Humboldt (m) (a).....	Idaho Springs.....	Humboldt Mining Company.....	Box 602, Idaho Springs.....	Gold, Silver (c)
Lincoln.....	Idaho Springs.....	Tar Heel Mining Company.....	U. S. National Bank Building, Denver.....	Gold, Silver, Copper, Lead
Little Cub (a).....	Idaho Springs.....	Black Bear Mines, Incorporated.....	Idaho Springs.....	Gold, Silver (c)
Mattie (m).....	Idaho Springs.....	Mattie Consolidated Mining and Milling Company.....	340 Continental Oil Building, Denver.....	Gold, Silver

Miller Tunnel Group (a).....	Idaho Springs.....	Boston Mining Company.....	1864 So. Marion St., Denver....	Gold, Silver (c)
Mt. Kelso (a).....	Silver Plume.....	Mt. Kelso Consolidated Mining Co.....	Georgetown	Gold, Silver, Lead (c)
Neath (a).....	Empire.....	Gold Horn Mining Company.....	Midland Savings Bldg., Denver. Gold, Silver (c)	
New Era (m) (a).....	Idaho Springs.....	Devereaux Mines, Incorporated.....	1620 Grant St., Denver.....	Gold, Silver, Cop- per, Lead
Old DeCaprivi (a).....	Lawson.....	Falling and Selby.....	3602 Alcott St., Denver.....	Gold, Silver (c)
Pittsburg (a).....	Empire.....	Nelson Leasing and Development.....	Empire	Gold
Princess of India (a).....	Lawson.....	H. D. Writer and Associates.....	301 U. S. National Bank Building, Denver.....	Gold, Silver, Lead
Pulaski (m).....	Silver Plume.....	Crown Point Mining Company.....	P. O. Box 623, Bartlesville, Oklahoma.....	Gold, Silver
Puzzler (a).....	Empire.....	Everett Snyder and Associates.....	Empire	Gold, Silver (c)
Raymon (a).....	Georgetown	W. H. Muehler and Associates.....	Georgetown	Gold, Silver (c)
San Juan (m) (a).....	Idaho Springs.....	Carl Clifford and Gilbert Beach.....	Idaho Springs.....	Gold, Silver
Santiago (a).....	Georgetown	Santiago Metals Corporation.....	Roggen	Gold, Silver, Lead (c)
Summit.....	Idaho Springs.....	Roy Perry.....	Idaho Springs.....	Gold
Sweet Home (a).....	Idaho Springs.....	J. B. Hartman.....	Box 302, Idaho Springs.....	Gold, Silver (c)
Tolland County Tunnel Group (a).....	Idaho Springs.....	Aetna Leasing Company.....	108 Van Buren Avenue, West Hartford, Connecticut.....	Gold, Silver, Lead
Twin Lode (m) (a).....	Empire.....	Twin Lode Mining and Milling Co.....	Empire	Gold, Silver
West Gold (a).....	Idaho Springs.....	George H. Curnow.....	Idaho Springs.....	Gold
Willson (a).....	Empire.....	A. C. Willson-Zehr.....	Empire	Gold, Silver (c)

OPERATING MINES IN CUSTER COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bassick, Lookout and Georgia Claims (a).....	Querida	John Hutcliffson and Company.....	Pueblo	Gold (c)
Bassick, Maine, Clain (a).....	Querida	Elton Gray and Mark Galusha.....	Querida	Gold
Cloverdale (m) (a).....	Hillsdale	Cloverdale Mines Company.....	Hillsdale	Gold (c)
Hector (a).....	Westcliffe	L. A. Vreeland and Company.....	1501 Court St., Pueblo.....	Gold
Passiflora (a).....	Westcliffe	William Schellerberg and Associates.....	Westcliffe	Silver, Lead
Vulcan Tunnel (a).....	Querida	T. M. Howells.....	Star Route, Silver Cliff.....	Gold, Silver, Lead
Whistle	Querida	James C. Prentice.....	Silver Cliff.....	Gold, Silver, Lead (c)

(a) Operated for part of the year only. (c) No production reported in 1933. (m) Mill operated in connection with mine.

OPERATING MINES IN DOLORES COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Burns Group (a)	.....Rico	.....Mines Leasing Syndicate	.....709 Harris Building, Chicago, Illinois	.....Gold, Silver, Lead, Copper, Zinc (c)
Pro Patria (a)	.....Rico	.....Rico-Enterprise Mining Company	.....Rico	.....Gold, Silver, Lead, Zinc (c)
St. Louis Smelting	.....Rico	.....St. Louis Smelting & Refining Co.	.....722 Chestnut St., St. Louis, Missouri	.....Silver, Copper, Lead, Zinc, Iron (c)

OPERATING MINES IN DOUGLAS COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Caldon Reef (a)	.....Littleton	.....Caldon Reef Mining and Milling Co.	.....Midland Savings Bldg., Denver	.....Gold (c)

OPERATING MINES IN EAGLE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Champion (a)	.....Battle Mountain	.....H. H. Wallower	.....Leadville	.....Gold, Silver
Eagle Mines	.....Gilman	.....Empire Zinc Company	.....Gilman	.....Gold, Silver, Lead, Copper, Zinc, Iron
Groundhog Incline	.....Beldon Canon	.....Frank Teterault and Associates	.....Bells Camp via Redcliff	.....Gold
Pine Martin Group	.....Beldon Canon	.....Holden Brothers Lease	.....Minturn	.....Gold
Pine Martin Group	.....Beldon Canon	.....Jessen and Price Lease	.....Minturn	.....Gold
Poorman (a)	.....Not Given	.....Not Given	.....Not Given	.....Gold
Tip Top (a)	.....Beldon Canon	.....Clarence De Witt and James Black	.....Redcliff	.....Gold, Silver

OPERATING MINES IN FREMONT COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Dawson City (a)	.....Canon City	.....Granite Gold Mining Company	.....Mining Exchange Bldg., Colorado Springs	.....Gold (c)
Mowe, Hollister, Drake Claims (a)	.....Canon City	.....James Mowe and Associates	.....Canon City	.....Gold (c)
Shamrock Claim (a)	.....Canon City	.....Robert Hoard and Associates	.....1412 Greenwood Ave., Canon City	.....Gold

OPERATING MINES IN GILPIN COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bates Hunter (a)	Central City	H. M. Williamson and Associates	215 Cooper Building, Denver	Gold, Silver (c)
Blue Diamond (m)	Blackhawk	Blue Diamond Mines Incorporated	1010 University Bldg., Denver	Gold, Silver, Lead
Buckhorn (a)	Blackhawk	W. E. Gomer	Central City	Gold, Silver
Bullion (a)	Central City	Grubb Gordon Mining Company	1861 Humboldt St., Denver	Gold, Silver, Lead
Caledonia (a)	Central City	F. S. Brown and Associates	1743 So. Baltimore St., Tulsa, Oklahoma	Gold, Silver (c)
Chain O' Mines (m)	Central City	Chain O' Mines, Incorporated	Boston Building, Denver	Gold, Silver, Lead, Copper
Cora (a)	Blackhawk	B. A. Forche and Associates	413 Canyon St., Fort Collins	Gold, Silver (c)
Delmonico (a)	Central City	Delmonico Mine Operating Corp.	Box 423, Idaho Springs	Gold, Silver (c)
Eda Tunnel (a)	Blackhawk	C. P. Rundquist and Associates	Blackhawk	Gold, Silver (c)
Gold Basin Group	Rollinsville	Gold Basin Mining Company	Windsor Hotel, Denver	Gold, Silver (c)
Grace (a)	Rollinsville	Frank Stevenson and Associates	Milliken	Gold, Silver (c)
Homestake	Russell Gulch	John Hancock and Associates	Russell Gulch	Gold, Silver
Independent (m)	Blackhawk	Peerless Gold Mines, Incorporated	Central City	Gold
Jordon	Rollinsville	Jordon Mines Company	Rollinsville	Gold, Silver
Lone Star	Blackhawk	Charles S. Hawn and Associates	Rollinsville	Gold, Silver (c)
McGreer	Blackhawk	T. J. Mining and Milling Company	Indian Hills	Gold, Silver
Morning Star (a)	Russell Gulch	Ben F. Owen	Idaho Springs	Gold, Silver
Newport and Providence (m)	Rollinsville	Henry Josephson and V. R. Kloer	Rollinsville	Gold, Silver
Ninety One (a)	Russell Gulch	Lowell Griffith and Associates	Russell Gulch	Gold, Silver
Pay Me (a)	Blackhawk	Henry J. Newson	Blackhawk	Gold, Silver
Perigo (a)	Rollinsville	Perigo Mines Company	707 So. Downing, Denver	Gold
Perrin (a)	Russell Gulch	B. D. Goodier	Box 158, Central City	Gold, Silver
Pittsburgh Group (m)	Central City	Gold King Mining Company	711 E. & C. Building, Denver	Gold, Silver
Powers (m)	Central City	War Dance Mines, Incorporated	Idaho Springs	Gold, Silver
Red Arrow	Russell Gulch	Red Arrow Mining Company	Idaho Springs	Gold, Silver (c)
Robert Emmet (m)	Rollinsville	Oncida Mining Company	Rollinsville	Gold, Silver
Roosevelt (a)	Central City	Wilbur Parfet and Associates	Central City	Gold, Silver
Russell	Russell Gulch	Lowell Griffith and Associates	Russell Gulch	Gold, Silver
Saratoga (a)	Russell Gulch	George Curnow and Associates	Idaho Springs	Gold, Silver
We Got Em	Blackhawk	A. F. Acker and Associates	Blackhawk	Gold, Silver
West Notoway	Central City	Ben Neep and Associates	Idaho Springs	Gold, Silver

OPERATING MINES IN GRAND COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bonnie Belle (a)	Parshall	Chas. A. Fletcher and Associates	Parshall	Gold, Silver, Lead, Copper, Zinc (c)
Elk Mountain (a)	Kremmling	Elk Mountain Copper Corporation	Hot Sulphur Springs	Gold, Silver, Lead, Copper, Zinc (c)
(a) Operated for part of the year only.		(c) No production reported in 1933	(m) Mill operated in connection with mine.	

OPERATING MINES IN GUNNISON COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Brinkmeier Tunnel (a)	Marble	Jacob F. Smith and Associates	1403 Liberty Bank Building, Buffalo, N. Y.	Gold
Carter (m)	Ohio	Carter Mines Company	1221 Sherman St., Denver	Silver, Lead
Gold Links (m)	Ohio	American Metals Corporation	Ward	Silver, Lead
Gold Monument (m)	Ohio	Gold Monument Mining Company	303 Colorado Building, Denver	Gold, (c)
Lucky Strike (m)	Gunnison	Phillips H. Clarke	Gunnison	Gold, (c)
Maple Leaf (a)	Parlin	John H. Fox	Parlin	Gold
McWilliams Tunnel	Marble	C. C. McWilliams and Associates	Marble	Gold, (c)
Old Lot (a)	Iola	Economy Mining and Milling Co.	Delta	Gold, Silver, Lead, Zinc (c)
Raymond and Cyrus Claims	Ohio	George A. Norwood and C. A. Whitehorn	Pitkin	Gold, Silver, Lead
Roosevelt (m)	Pitkin	Roosevelt Gold Mines Company	Kansas City, Missouri	Gold, Silver, Copper (c)
Victory (a)	Ohio	M. O. Plewes	Pitkin	Gold, Silver, Lead

OPERATING MINES IN HINSDALE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Golden Wonder (a)	Lake City	San Juan Gold Mines Corporation	50 Broad St., New York, N. Y.	Gold, Silver, Copper (c)

OPERATING MINES IN LAKE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Antelope Tunnel (a)	Leadville	Antelope Tunnel and Mining Co.	Leadville	Gold, Silver, Lead
Ballard (a)	Breece Hill	J. L. Magney and Associates	725 U. S. National Bank Building, Denver	Gold, Bismuth (c)
Blanche Shaft (a)	Leadville	Little Ella Mining Company	Leadville	Gold, Silver, Lead
Cleveland Tunnel	Leadville	William J. Forbes and Company	Leadville	Gold, Silver, Lead
Climax Molybdenum (m)	Climax	Climax Molybdenum Company	Climax	Molybdenum
Elva Elma (a)	Leadville	Bryan Munll	Leadville	Gold, Silver
Highland Mary Tunnel	Leadville	Joseph Boland and Associates	Leadville	Gold, Silver, Lead
Ibex	Johnny Hill	Ibex Mining Company	Leadville	Iron, Bismuth (c)
Kathleen Shaft (a)	Leadville	Robert W. Elder and Associates	Leadville	per, Lead, Silver, Copper
Lillian Group (a)	Leadville	R. D. McLeod	Leadville	Zinc, Iron, (c)
				Gold, Silver

President (a).....	C. Diemer.....	Leadville.....	Leadville.....	Gold, Silver
Resurrection	Zenda Leadville Gold Mining Co.....	Box 922, Leadville.....	Leadville.....	Gold, Silver, Lead, Copper, Zinc, Iron (c)
South Moyer Dump (a).....	California Gulch-Rock Hill Mining Company.....	Leadville.....	Leadville.....	Lead, Zinc
St. Anne Shaft (a).....	W. J. Davis and Associates.....	Leadville.....	Leadville.....	Gold
St. Louis Tunnel (a).....	St. Louis Leasing Company.....	Leadville.....	Leadville.....	Lead
Tenderfoot Shaft (a).....	Depression Leasing Company.....	Leadville.....	Leadville.....	Gold, Silver, Lead (c)
Tucson Dump (a).....	M. A. Nicholson and Associates.....	Leadville.....	Leadville.....	Lead, Zinc
Valley (a).....	Luema Mining Company.....	Leadville.....	Leadville.....	Gold, Silver
Venir Lease.....	Venir Lease.....	Leadville.....	Leadville.....	Gold

OPERATING MINES IN LA PLATA COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bay City Group (a).....	Hesperus	I.afe Carson.....	Hesperus	Gold, Silver, Copper (c)
Bessie G. (a).....	Durango	Durango Chamber of Commerce.....	Durango	Gold
Gold King (m).....	La Plata	La Plata Mines Company.....	La Plata.....	Gold, Silver, Lead
Hazel M. (a).....	Trimble Springs.....	Amalgam Mines, Incorporated.....	Box 614, Durango.....	Tellurides
Last Chance (a).....	Not Given.....	Mason Mining and Milling Company.....	Durango	Gold (c)
Lucky Moon (a).....	Hesperus	Lucky Discovery Gold, Incorporated.....	Durango	Gold
May Day (m).....	Hesperus	May Day Milling Company.....	Durango	Gold, Silver
Mountain Lilly (a).....	La Plata City.....	A. J. Mernt.....	Walsenburg	Gold
Poverty Hill (m) (a).....	Trimble Springs.....	Elmer M. and W. A. Mason.....	Durango	Gold

OPERATING MINES IN LARIMER COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Carter (a).....	Masonville	Golden Age Mining Company.....	712 E. Abriendo Ave., Pueblo.....	Gold (c).....
Cash (a).....	Eggers	Cash Gold Mining Company.....	2305 Gaylord St., Denver.....	Gold, Silver, Copper, Lead (c)
Colorado (a).....	Manhattan	Colonial Investment Company.....	Logcabin	Gold, Silver, Copper (c)
Depression (a).....	Bellvue	J. E. Rowell and Associates.....	Bellvue	Gold, Silver
Dixie Group (a).....	Manhattan	Dixie Gold Mining Company.....	608 So. Meldrum St., Ft. Collins.....	Silver (c)
Lone Pine (a).....	Masonville	Mrs. Anna Krutinger.....	Masonville	Gold
Prodigal (a).....	Manhattan	J. P. Winters and Associates.....	Logcabin	Gold, Silver (c)
Rockfield (a).....	Manhattan	S. A. and W. T. Pendergast.....	Logcabin	Gold, Silver, Copper (c)
Rugh (a).....	Bellvue	Rugh Mining Company.....	Bellvue	Gold, Silver

(a) Operated for part of the year only. (c) No production reported in 1933. (m) Mill operated in connection with mine.

OPERATING MINES IN MONTEZUMA COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Old Kentucky (a).....	Mancos	George W. Gilmore, Sr., and Jr.	Hesperus	Gold (c)
Red Arrow.....	Mancos	C. H. Starr and Associates.	Hesperus	Gold

OPERATING MINES IN OURAY COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
American Nettle.....	Ouray	William McCullough and Associates	Ouray	Gold, Silver
Atlas (m) (a).....	Ouray	John Donald	Ouray	Gold, Silver, Lead
Camp Bird Mill Tailings (a).....	Ouray	E. B. Hayes and R. B. Magee	Ouray	Gold, Silver
Camp Bird (m).....	Ouray	King Lease, Incorporated	Norwood	Gold, Silver, Lead
Governor Group (a).....	Ouray	E. A. Alexander	Ouray	Copper
Pony Express (a).....	Ouray	Bauner American Mining Company	Ouray	Gold, Silver, Lead
Revenue Tunnel Mill Tailings (m) (a).....	Ouray	Walter B. Rogers	Ouray	Gold, Silver, Lead
Sfar and Crescent (a).....	Ouray	Clarence McCarrier and Associates	Silverton	Gold, Silver (c)
Trust Ruby Group (a).....	Ouray	Nick Flor and Associates	Ouray	Gold, Silver, Lead
Wanakah.....	Ouray	Al Moule and Associates	Ouray	Zinc
				Gold, Copper

OPERATING MINES IN PARK COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
American (m).....	Alma	Amer Mining Company	540 Brown Palace Hotel, Denver	Gold, Silver
Archibald (a).....	Alma	Alma Archibald Gold Syndicate	725 U. S. National Building, Denver	Gold, Silver
Butte.....	Alma	London Butte Gold Mining Company	Fairplay	Gold, Silver
Discovery No. 1 (a).....	Alma	A. J. Sandusky	Alma	Gold, Silver, Lead
Excelsior (a).....	Alma	Bald Mining Company	2420 17th St., Denver	Gold
Funston and Lucky Strike (a).....	Alma	Albert A. Schultz	Alma	Gold, Silver, Lead
Iowa.....	Alma	Sonny Boy Mines, Incorporated	930 So. Elizabeth St., Denver	Gold, Silver (c)
Juanita-May (a).....	Alma	Gold Clad Mining Company	Alma	Gold, Silver
Kentucky Belle (m) (a).....	Alma	Summit Mines Company	621 Pine St., Boulder	Gold, Silver, Lead
London (m).....	Alma	London Gold Mining Company	Mining Exchange Building, Colorado Springs	Copper
				Gold, Silver

Magnolia (m) (a)	Alma	F. G. Proudfoot	1135 Morse Avenue, Chicago, Illinois	Gold
Missouri (a)	Shawnee	Canabsa Mining and Milling Co.	332 Santa Fe Ave., Littleton	Gold, Silver, Lead, Copper, Bismuth
Morning Star (m)	Alma	Alma Syndicate	703 First National Bank Building, Denver	Gold, Silver
North London (m)	Alma	Fairplay Gold Mines Incorporated	Fairplay	Gold, Silver
Oliver Twist Tunnel	Alma	London Mountain Gold Mining Co.	604-610 Denham Bldg., Denver	Gold, Silver (c)
Orphan Boy	Alma	Colorado National Gold, Inc.	335 First National Bank Building, Colorado Springs	Gold, Silver, Lead
Paris (m)	Alma	Alma Gold Corporation	706 First National Bank Building, Denver	Gold, Silver
Preparedness (a)	Alma	I. B. Baldock and Associates	Alma	Gold, Silver
Three Brothers (a)	Alma	Fairplay Gold Mines, Incorporated	Fairplay	Gold, Silver
West London	Alma	West London Mining Company	502 California Bldg., Denver	Gold, Silver
Wyandott (a)	Alma	C. and S. Mining Company	1000 So. Washington St., Denver	Gold, Silver

OPERATING MINES IN PITKIN COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Midnight (m)	Aspen	Midnight Mining Company	Aspen	Silver, Lead, Zinc

OPERATING MINES IN RIO GRANDE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Chandler (a)	Summitville	Summitville Mines Corporation	1555 Sherman St., Denver	Gold, Silver
Miser Tunnel (a)	Lasper	Marion Mining Company	727 First National Bank Building, Denver	Gold, Silver, Lead, Copper, Zinc (c)

OPERATING MINES IN ROUTT COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Elkhorn (a)	Columbine	Walter W. Curtis and Associates	1133 York St., Denver	Gold, Silver, Lead, Copper, Zinc (c)
Royal Flush (m) (a)	Columbine	Hahn's Peak Gold Mining and Milling Company	Room 3, Algoma Building, Oshkosh, Wisconsin	Gold, Silver, Lead, Copper, Zinc (c)

(a) Operated for part of the year only.

(c) No production reported in 1933.

(m) Mill operated in connection with mine

OPERATING MINES IN SAGUACHE COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Express Headlight (a).....	Bonanza	Morton Dickson.....	1124 Greenwood Ave., Canon City	Gold, Silver, Lead, Copper (c)
Folsom, Josie K (a).....	Del Norte.....	Josie K. Folsom Mining and Milling Company.....	4280a. Holly Ave., St. Louis, Missouri	(c) Silver, Lead, Copper, Zinc
Rawley Dump (a).....	Bonanza	Clifford E. Bennet.....	Bonanza	Gold, Silver, Lead, Copper (c)
Whale (a).....	Bonanza	L. G. Johnston and Associates.....	Bonanza	Gold, Silver, Lead, Copper (c)

OPERATING MINES IN SAN JUAN COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Lead Carbonate (a) (m).....	Silverton	El Banco Mines Company.....	Bangor, Maine.....	Gold, Silver, Lead, Copper, Zinc
Little Nation (m).....	Howardsville	Royal Charter Mining Company.....	2200 McGee St., Kansas City, Missouri	Gold, Silver, Lead, Copper, Zinc
Maybell Group (m) (a).....	Silverton	San Juan Mining Company.....	418 Flynn Building, Des Moines, Iowa.....	Gold, Silver, Copper, Lead (c)
Pride of the West (m) (a).....	Howardsville	Alfred W. Harrison.....	Silverton	Gold, Silver, Lead, Copper, Zinc (c)
Shenandoah-Dives (m).....	Silverton	Shenandoah-Dives Mining Company.....	1000 Grand Ave., Kansas City, Missouri.....	Gold, Silver, Lead, Copper

OPERATING MINES IN SAN MIGUEL COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Bootjack (m) (a).....	Ophir	Ouray Concentrating Company.....	2541 Washtenaw Ave., Chicago, Illinois.....	Gold, Silver, Lead, Zinc
Hattle Group (a).....	Ophir	Joe Jackson and Louis Locker.....	Ophir	Gold, Silver, Lead (c)
Nellie and Laura (a).....	Telluride	Paul Nardin.....	Telluride	Gold, Silver
New Dominion (a).....	Ophir	James Noyes.....	Ophir	Gold, Silver, Lead, Zinc

Silver Tip (a).....	Ophir	H. A. and W. F. Pollman.....	Ophir	Gold, Silver, Lead, Copper
Smuggler Union, above Penn. Tunnel (a) (m).....	Telluride	Ben Grimes.....	130 Larimer St., Denver.....	Gold, Silver, Lead
Smuggler Union, Penn. Tunnel Section (m) (a).....	Telluride	Telluride Mining and Milling Co.....	Telluride	Gold, Silver, Lead (c)

OPERATING MINES IN SUMMIT COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Blue River Tunnel (a) (m).....	Breckenridge	Arctic Gold Mining Company.....	First National Bank Build- ing, Denver.....	Gold, Silver (c)
Boston	Kokomo	J. C. Colsman and Associates.....	1840 Marion St., Denver.....	Gold, Silver, Lead
Excelsior (a).....		Excelsior Mines and Electric Corp.....	First National Bank Build- ing, Denver.....	Gold, Silver
Frisco (a).....	Frisco	Frisco Mining and Milling Company.....	616 Denham Building, Denver.....	Gold, Silver (c)
Gold Crest (a).....	Kokomo	Gold Crest Mining Company.....	1007 12th St., Golden.....	Gold, Silver (c)
Gold Pissure (a).....	Montezuma	New Deal Leasing Company.....	Montezuma.....	Gold, Silver (c)
Jumbo (a).....	Breckenridge	Jumbo Properties, Incorporated.....	708 Colorado Building, Denver.....	Gold, Silver, Lead
Little Emma (a).....	Breckenridge	Martin and Martin.....	534 Lincoln St., Denver.....	Gold, Silver
McDowell (m).....	Breckenridge	McDowell Mines, Incorporated.....	746 Equitable Bldg., Denver.....	Gold, Silver
Mitchell (a).....	Montezuma	Ethel May Carson.....	516 W. 4th St., Grand Island, Nebraska.....	Silver, Lead (c)
Pacific (a).....	Breckenridge	G. S. Thomas.....	Alma.....	Gold, Silver
Pilot (a).....	Breckenridge	George Robinson.....	Breckenridge.....	Gold, Silver, Lead
Silver King.....	Montezuma	Mrs. F. H. Kistler and Associates.....	190 High St., Denver.....	Gold, Silver, Lead
Tiger (m) (a).....	Tiger	Royal Tiger Mines Company.....	Tiger.....	Gold, Silver

OPERATING MINES IN TELLER COUNTY, 1933

Name of Mine	Location	Operator	P. O. Address	Character of Product
Ada Bell.....	Cripple Creek.....	Ada Bell Gold Mining Company.....	Lead, South Dakota.....	Gold
Adney (a).....	Cripple Creek.....	Adney Gold Mines Company.....	Cripple Creek.....	Gold
Ajax (a).....	Victor.....	Colorado International Mining Co.....	29 Broadway, New York, N. Y.....	Gold
Adhambra (a).....	Victor.....	W. H. and W. E. Bond.....	Box 186, Victor.....	Gold (c)
American Eagle (a).....	Bull Hill.....	Western Mining and Leasing Co.....	434 U. S. National Bank Building, Denver.....	Gold
Buckeye (a).....	Cripple Creek.....	Fred Henderson.....	Cripple Creek.....	Gold
Cameron-Le Brun Shaft (a).....	Cripple Creek.....	Cameron Gold Mines, Incorporated.....	567-568 Empire Bldg., Denver.....	Gold
Chatt Group (a).....	Cripple Creek.....	Geophysical Mining Company.....	1323 N. Wabash, Colorado Springs.....	Gold (c)

(a) Operated for part of the year only. (c) No production reported in 1933. (m) Mill operated in connection with mine.

OPERATING MINES IN TELLER COUNTY, 1933—Continued

Name of Mine	Location	Operator	P. O. Address	Character of Product
Columbine-Victor Tunnel (a)	Victor	R. A. Jewell	Victor	Gold (c)
Commonwealth	Cripple Creek	Commonwealth Gold, Incorporated	Victor	Gold
Comstock Mining Properties (a)	Cripple Creek	John M. Starr	Box 21, Cripple Creek	Gold (c)
Cortez and Galena Tunnel	Cripple Creek	Red Mountain Mining and Milling Company	Cripple Creek	Gold (c)
Cresson	Cripple Creek	Cresson Consolidated Mining and Milling Company	Box 86, Colorado Springs	Gold
Deadwood Shaft	Victor	Gold Bullion Mines, Incorporated	434 U. S. National Bank Building, Denver	Gold
Elkton Dump	Cripple Creek	Charles Ronning, A. B. Stewart and Associates	Cripple Creek	Gold
Forest Terry and Ruby	Cripple Creek	J. S. Anderson	Cripple Creek	Gold
Golden Claim (a)	Cripple Creek	Shirley Johnson	Cripple Creek	Gold (c)
Granite Hamlet, Dexter (a)	Victor	Granite Gold Mining Company	Victor	Gold
Hill Top Group (a)	Bull Hill	Chas. J. Hedrick	Cripple Creek	Gold
Howard and Barron Lease	Tenderfoot Hill	Shirley D. Johnson	1010 First National Bank Building, Denver	Gold (c)
Hull City	Cripple Creek	Howard and Barron	Independence	Gold
Ida May	Independence	Hidalgo Gold Mines, Incorporated	Cripple Creek	Gold
Index	Victor	Walter Wagner and Don Casselman	Box 101, Cripple Creek	Gold
Iron Glad (m) (a)	Cripple Creek	Gold Mines Consolidated Corporation	316 C. A. Johnson Building, Denver	Gold
Jerry Johnson	Cripple Creek	Shamrock Milling Company	Green Mountain Falls	Gold
Jo Dandy (a)	Cripple Creek	Jerry Johnson Gold, Incorporated	Cripple Creek	Gold
Katinka (a)	Raven Hill	New Zealand Gold Mines Company	Box 212, Manitou	Gold
Last Dollar	Cripple Creek	Unity Gold Corporation	Cripple Creek	Gold (c)
Little Fauntleroy (a)	Victor	Portland Gold Mining Company	Burns Building, Colorado Springs	Gold
Little Ida (a)	Cripple Creek	June Bell Mining Company	302 Interstate Trust Bldg., Denver	Gold (c)
Logan, John A.	Cripple Creek	J. C. Wagner and Mrs. Ida Wagner	Cripple Creek	Gold
Los Angeles (a)	Bull Hill	International Gold Producers, Inc.	817 17th St., Denver	Gold
Mary McKinney	Cripple Creek	Reiter-Marbut Leasing Company	630 U. S. National Bank Building, Denver	Gold
May B.	Victor	Lester Thompson	Cripple Creek	Gold
Milton Smith (Lease)	Cripple Creek	May B. Mining Company	Victor	Gold
Monroe (Lease) (a)	Cripple Creek	Milton Smith	1617 W. Boulder St., Colorado Springs	Gold
Moose	Cripple Creek	Monroe Lease	Cripple Creek	Gold
Mountain Monarch (a)	Cripple Creek	Moose Mine Operations, Incorporated	Cripple Creek	Gold
	Cripple Creek	Pit Leasing Company	410 California Bldg., Denver	Gold (c)

New Gold Dollar (a).....	Beacon Hill.....	New Gold Dollar Mining Company.....	Cripple Creek.....	Gold
New Zealand Shaft (a).....	Cripple Creek.....	New Zealand Mines, Incorporated.....	Manitou.....	Gold
Night Hawk (a).....	Victor.....	W. R. Hamilton.....	1644 Pine St., Boulder.....	Gold
Patti Rosa.....	Cripple Creek.....	Reiter-Marbut Leasing Company.....	630 U. S. National Bank Building, Denver.....	Gold
Pharmacist (a).....	Cripple Creek.....	M. L. Radfield.....	None Given.....	Gold
Pinnacle.....	Cripple Creek.....	Mexican Gold and Silver Mining Co.....	Alexander Bldg., San Francisco, California.....	Gold
Plutoerat (a).....	Cripple Creek.....	J. E. Hall.....	Box 762, Denver.....	Gold
Portland.....	Victor.....	Portland Gold Mining Company.....	Burns Building, Colorado Springs.....	Gold
Pride of Cripple Creek (a).....	Iron Clad Hill.....	W. L. Benson.....	None Given.....	Gold
Pueblo Claim (a).....	Victor.....	Neff Brothers and Company.....	Cripple Creek.....	Gold
Queen Mine Dump (a).....	Cripple Creek.....	John T. Milliken, Jr.....	St. Louis, Missouri.....	Gold
Rhyolite Chief and National Debt Claim (a).....	Spring Creek.....	Frank Darlington and Associates.....	Box 235, Cripple Creek.....	Gold (c)
Rose Nicol.....	Cripple Creek.....	United Gold Mines Company.....	Box 86, Colorado Springs.....	Gold
Saigre de Cristo Tunnel (a).....	Tenderfoot Hill.....	Isis Gold Mining Company.....	5400 W. 38th Ave., Denver.....	Gold
Santa Rita (a).....	Victor.....	Golden Rod Mining and Milling Corporation.....	Box 346, Victor.....	Gold
Solomon.....	Cripple Creek.....	Solomon Leasing Company.....	Cripple Creek.....	Gold
South Burns Shaft (a).....	Bull Hill.....	Colorado Gold Mines, Incorporated.....	Cripple Creek.....	Gold
Specimen (a).....	Victor.....	Gerald Thomas and Bert Bielz.....	Victor.....	Gold
Star of Bethlehem (a).....	Cripple Creek.....	Bethlehem-Longfellow Mining and Milling Corporation.....	1317 First National Bank, Dallas, Texas.....	Gold (c)
Stratton C. C. M. and D. Co. Cripple Creek.....	J. O. B. Keener, Agent.....	Portland Gold Mining Company.....	Burns Building, Colorado Springs.....	Gold
Stratton's Independence.....	Victor.....	Strong Leasing and Mining Co.....	U. S. National Bank Building, Denver.....	Gold
Strong (a).....	Victor.....	United Gold Mines Company.....	Box 86, Colorado Springs.....	Gold
Theresa Shaft.....	Victor.....	Calhoun Lease and Others.....	Cripple Creek.....	Gold
Victor (a).....	Bull Hill.....	United Gold Mines Company.....	Box 86, Colorado Springs.....	Gold
Vindicator.....	Victor.....	North American Mines.....	75 Federal St., Boston, Mass.....	Gold
Wagner (a).....	Cripple Creek.....	Kirk Lease.....	Cripple Creek.....	Gold (c)
White Rose and Mounmouth Claims (c).....	Carbonate Hill.....			

(a) Operated for part of the year only (c) No production reported in 1933. (m) Mill operated in connection with mine.

OPERATING QUARRIES AND CLAY PITS, 1933

Town	County	Name	Product	Operator	Address
Boulder	Boulder	Jacobson	Crushed Rock	Nels I. Jacobson	1155 Portland St., Boulder
Lyons	Boulder	Lyons Red Granite	Red Granite	John Rabesco	653 Perry St., Denver
Lyons	Boulder	Saint Vrain Red Sandstone	Red Sandstone	J. C. Brodie	609 Interstate Trust Building, Denver
Boulder	Boulder	San	Crushed Rock, Building Stone	J. C. Brodie	609 Interstate Trust Building, Denver
Monarch	Chaffee	Monarch Lime	Lime Rock	Colorado Fuel and Iron Co.	Garfield
Castle Rock	Douglas	Castle Rock City	Plastic Clay	A. C. Nipko	Castle Rock
Castle Rock	Douglas	Johnson Clay	Plastic Clay	H. G. Johnson	Castle Rock
Littleton	Douglas	Helmer	Red Clay, Silica Sand, Limestone, Fire Clay	T. L. Helmer	Box 94, Littleton
Colorado Springs	El Paso	Lennox Breed	Limestone	Holly Sugar Corporation	Colorado Springs
Manitou	El Paso	Manitou Green Stone	Red Limestone, Green Sandstone		
Manitou	El Paso	Western Lime Rock	Limestone	M. F. Yount	15th Floor San Jacinto Building, Beaumont, Texas
Canon City	Fremont	Burnito	Sandstone	Western Sales Company	510 Patterson Building, Denver
Texas Creek	Fremont	Coleman Indian Plink	Monumental Granite	S. Vernon St. John	1130 Macon Ave., Canon City
Oak Creek	Fremont	Coleman Oak Creek	Monumental Granite	V. D. Coleman Granite Co.	1025 North Cedar St., Colorado Springs
Portland	Fremont	Colorado Portland	Limestone	V. D. Coleman Granite Co.	1025 North Cedar St., Colorado Springs
Canon City	Fremont	Deer Hill	Fire Clay	Colorado Portland Cement Co.	Denver National Bldg., Denver
Canon City	Fremont	Devil Hole	Beryl, Feldspar, Mica	Diamond Fire Brick Company	60 E. 42nd St., New York, N. Y.
Coaldale	Fremont	Gypsum	Gypsum	E. Zingheim	Box 558, Route 1, Canon City
Canon City	Fremont	Gypsum Quarry on School Land	Gypsum	T. A. Gilray	Coaldale
Wellsville	Fremont	Rogers	Limestone	Colorado Portland Cement Co.	Denver National Bldg., Denver
Texas Creek	Fremont	Rose Pink	Granite	Frank H. Norberg, Inc.	979 Madison St., Denver
Canon City	Fremont	Shaw Park	Silica Rock	Salida Granite Corporation	Salida
				Diamond Fire Brick Company	60 E. 42nd St., New York, N. Y.

Canon City...	Fremont	Shipley	Feldspar	Mica-Ralph H. Magnuson	1333 W. Maple St., Denver
Canon City...	Fremont	Stanko and Halstead	Feldspar	Mica-Ralph H. Magnuson	1333 W. Maple St., Denver
Twin Peaks	Fremont	U. S. Marble & Travertine	Marble, Travertine	U. S. Marble Company	404 Temple Court Bldg., Denver
Wellsville	Fremont	Wallen	Limestone	Frank H. Norberg, Inc.	979 Madison St., Denver
Sallida	Fremont	Wellsville Travertine	Travertine	Colorado Travertine Company	724 Cooper Building Denver
Marble	Gunnison	Yule Marble	Marble	Yule Colorado Marble Co.	Proctor, Vermont
Golden	Jefferson	Blinder	Clay	Denver Pressed Brick Co.	W. 16th Ave. and Clay St., Denver
Golden	Jefferson	Coors	Plastic Clay	Coors Porcelain Company	Golden
Golden	Jefferson	Crucible	Fire Clay	Colorado Crucible Clay Co.	Box 1107, Denver
Golden	Jefferson	Fire Clay	Fire Clay	Denver Sewer Pipe & Clay Co.	Curtis & Broadway Sts., Denver
Golden	Jefferson	Golden Clay	Plastic and Fire Clay	Golden Fire Brick Company	Golden
Golden	Jefferson	Johnson Clay	Plastic Clay	C. F. Willson	Arvada
Golden	Jefferson	Lindsay	Plastic Clay	George W. Lindsay	Box 1107, Denver
Golden	Jefferson	Moffit Clay	Fire Clay	Grant Parfett	Golden
Golden	Jefferson	Rockwell Clay	Clay	Jefferson Clay and Investment Company	Golden
Golden	Jefferson	Rubey Clay	Clay	Rubey Clay Company	Golden
Golden	Jefferson	Terra Cotta Clay	Plastic Clay	North Western Terra Cotta Co.	First and Unatilla Sts., Denver
Laporte	Larimer	Boettcher Cement	Limestone and Shale	Colorado Portland Cement Co.	Denver National Bldg., Denver
Laporte	Larimer	Clark	Limestone	Clark Quarries, Inc.	Box 503, Fort Collins
Laporte	Larimer	Gypsum	Gypsum	S. H. Roberts	Laporte
Bellvue	Larimer	Josefson	Limestone	John and Victor Josefson	Bellvue
Loveland	Larimer	U. S. Gypsum	Gypsum	United States Gypsum Co.	300 W. Adams St., Chicago, Ill.
Trinidad	Las Animas	Trinidad Brick and Tile	Shale, Brick, Tile	Trinidad Brick and Tile Co.	Trinidad
Creede	Mineral	Ultimate Tunnel No. 1	Bentonite	Ben Birdsey	Creede
La Junta	Otero	La Junta Shale	Blue Shale, Brick, Tile	La Junta Clay Products, Inc.	La Junta
Pueblo	Pueblo	Stone City Clay	Fire Clay	Pueblo Clay Products Company	Corner 9th and Bradford Sts., Pueblo
Pueblo	Pueblo	Summit Pressed Brick	Clay, Shale	Summit Pressed Brick & Tile Company	13th and Erie, Pueblo

OPERATING MILLS AND SMELTERS, 1933

Character of Plant	Town	Operator	County	Address
Arsenic and Cadmium Refinery	Denver	Adams and Denver	American Smelting and Refining Company	120 Broadway, New York, N. Y.
Flotation, Black Swan	Salina	Boulder	Equity Reduction Company	1805 Spruce St., Boulder
Sampling (Boulder Ore Sampler)	Boulder	Boulder	Saint Joe Mining and Milling Company	Albany Hotel, Boulder
Flotation (Philip Cary Mill)	St. Elmo	Chaffee	Philip Cary Mining and Milling Company	St. Elmo
Flotation and Amalgamation (Argo Mill)	Idaho Springs	Clear Creek	Galli Milling Company	Idaho Springs
Cyanidation and Flotation	Colorado Springs	El Paso	Golden Cycle Corporation	Golden Cycle Building, Colorado Springs
Zinc Oxide	Canon City	Fremont	Empire Zinc Company	Canon City
Concentration and Amalgamation (Farr Western Mill)	Blackhawk	Gilpin	Lloyd A. Farr	Central City
Lead Smelter	Leadville	Lake	American Smelting and Refining Company	120 Broadway, New York, N. Y.
D. and D. Mill (Concentration)	Leadville	Lake	Dewar and Dolan Milling Co.	Leadville
Mica Grinding	Pueblo	Pueblo	General Mica, Incorporated	211 First National Bank Bldg., Pueblo
Clay Crushing and Grinding	Pueblo	Pueblo	Peerless Clay and Mineral Co.	Pueblo

OPERATING PLACERS AND DREDGES, 1933

Name	Town	County	Operator	Address
Hughes	Nederland	Boulder	Harry Hughes and Associates	Nederland
Albany	Idaho Springs	Clear Creek	O. J. Cross and Associates	Idaho Springs
Boat	Idaho Springs	Clear Creek	Boat Placer Company	Floyd Hill
Gold Pit	Idaho Springs	Clear Creek	H. E. Winsor	Idaho Springs
Newlin Gulch	Littleton	Douglas	Frank B. Pamell	1244 Broadway, Denver
Eugene	Blackhawk	Gilpin	Eugene Mines, Incorporated	1130 First National Bank Bldg., Denver
Lucky Charles	Blackhawk	Gilpin	Lucky Charles Mining & Milling Company	2549 So. Acoma St., Denver
Pactolus	Pine Cliff	Gilpin	Prommel Mining Company	Box 75, Pine Cliff
Roscoe	Golden	Jefferson	Humphreys Gold Corporation	1130 First National Bank Bldg., Denver
Englebach	Leadville	Lake	J. W. McFall and Associates	Leadville
Hayden Ranch	Snowden	Lake	W. E. Callahan Construction Company	Malta
Mt. Elbert Gold Dredging	Leadville	Lake	Claybaugh and Hollenbeck	Leadville

Star	California	Gulch.....Lake	J. W. McFall and Company.....332 W. 3rd St., Leadville
Golden Rule.....	Hesperus	La Plata.....	O. E. Maxwell and Associates.....Savoy Hotel, Durango
Miller Furn.....	Hesperus	La Plata.....	La Plata Gold Placers, Inc.....Filed Apartments, Durango
Jack Rabbit.....	Lay.....	Moffat.....	A. G. Walihan.....Lay
Livingston.....	Craig.....	Moffat.....	T. D. Livingston.....Bags, Wyoming
Timberlake.....	Craig.....	Moffat.....	W. J. Portis and Associates.....Craig Divide
Zimmerman.....	Craig.....	Moffat.....	Frank and George Zimmerman.....Great Divide
Fortune Tarryall.....	Como.....	Park.....	W. E. Burk.....Como
Gold Run.....	Telluride	San Miguel.....	Gold Run Mining and Milling Company.....604 First National Bank Bldg., Denver
Sarah	Ophir.....	San Miguel.....	Dayton Development Company.....Bohlander Ave., Dayton, Ohio
Benrose	Breckenridge	Summit.....	Benrose Leasing Company.....Breckenridge
Blue River Dredge.....	Breckenridge	Summit.....	Continental Dredging Company.....310 Engineer Building, Denver
Bradshaw	Kokomo	Summit.....	Placer Gold Operators.....518 C. A. Johnson Bldg., Denver
Brown	Tiger	Summit.....	Brown Gulch Placers Mining Company.....Thatcher Building, Pueblo
Carpenter	Breckenridge	Summit.....	B. E. Wheeler and Associates.....Breckenridge
Carr	Breckenridge	Summit.....	El Cortez Gold Mining Ass'n.....Box 296, Breckenridge
Emillie	Breckenridge	Summit.....	Bert Watson and Associates.....Breckenridge
Nigger Gulch.....	Breckenridge	Summit.....	Reed Roberts and Associates.....Breckenridge
Peacock	Breckenridge	Summit.....	Monitor Mining Company.....Breckenridge
Tiger Placer Dredge.....	Tiger	Summit.....	Tiger Placer Company.....Tiger
Wire Patch.....	Breckenridge	Summit.....	Royal Tiger Mines Company.....Tiger
Yuba Dam.....	Breckenridge	Summit.....	Godman Lumber Company.....Denham Building Denver

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